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SEARCH REQUEST FORM

Scientific and Technical Information Center

108748
Access DB# 108742

Requester's Full Name: Jila Mohandesi Examiner #: 3728 Date: 11/29/03
Art Unit: 3728 Phone Number 305-7015 Serial Number: 0916491903
Mail Box and Bldg/Room Location: CP24B22 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Pkg Container for electronic comp.

Inventors (please provide full names): Stefan O. Dick, et al.

Earliest Priority Filing Date: 08/28/9002

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

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Searcher: EMORY DAMIRON

Searcher Phone #: 305 858 7

Searcher Location: CP 2 208

Date Searcher Picked Up: 11/26/03 3:30pm

Date Completed: 12/1/03 12:30pm

Searcher Prep & Review Time: 120 min

Clerical Prep Time: 0

Online Time: 150 min

Type of Search

NA Sequence (#) _____

AA Sequence (#) _____

Structure (#) _____

Bibliographic ☒

Litigation _____

Fulltext ☒

Patent Family _____

Other _____

Vendors and cost where applicable

STN _____

Dialog ☒ 860.33

Questel/Orbit _____

Dr.Link _____

Lexis/Nexis _____

Sequence Systems _____

WWW/Internet ☒

Other (specify) _____

Set	Items	Description
S1	61	AU=(DICK S? OR DICK, S? OR DICK S OR DICK, S OR DICK S. OR DICK, S. OR DICK SO OR DICK, SO OR DICK S.O. OR DICK, S.O. OR DICK STEFAN OR DICK, STEFAN)
S2	656	AU=(MARTIN M? OR MARTIN, M? OR MARTIN M OR MARTIN, M OR MARTIN M. OR MARTIN, M. OR MARTIN MB OR MARTIN, MB OR MARTIN M.-B. OR MARTIN, M.B. OR MARTIN MICHELL OR MARTIN, MICHELLE)
S3	2	AU=(NOBILET R? OR NOBILET, R? OR NOBILET R OR NOBILET, R OR NOBILET R. OR NOBILET, R. OR NOBILET ROGER OR NOBILET, ROGER)
S4	7	AU=(BOUVIER F? OR BOUVIER, F? OR BOUVIER F OR BOUVIER, F OR BOUVIER F. OR BOUVIER, F. OR BOUVIER FREDERIC OR BOUVIER, FREDERIC)
S5	725	S1:S4
S6	16	S5 AND (IC OR INTEGRATED()CIRCUIT? OR CIRCUIT()CHIP? OR SEMICONDUCTOR()CHIP? OR SILICON()CHIP? OR SMD OR SURFACE()MOUNT-?()DEVICE? OR ELECTRONIC()COMPONENT?)
S7	14	S6 AND PY<2003

? show files

File 347:JAPIO Oct 1976-2003/Jul(Updated 031105)
(c) 2003 JPO & JAPIO

File 350:Derwent WPIX 1963-2003/UD,UM &UP=200376
(c) 2003 Thomson Derwent

? pause

?

7/3,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

014746169 **Image available**
WPI Acc No: 2002-566876/ 200260
XRAM Acc No: C02-160808
XRPX Acc No: N02-448703

**Fabrication of semiconductor device involves providing partially
fabricated semiconductor having substrate, polysilicon and insulating
layers, and exposing device to noble gas halide to remove polysilicon
layer**

Patent Assignee: UNIV JOHNS HOPKINS (UYJO)

Inventor: **MARTIN M N**

Number of Countries: 097 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200259939	A2	20020801	WO 2001US51193	A	20011113	200260 B

Priority Applications (No Type Date): US 2000252504 P 20001122

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200259939 A2 E 15 H01L-000/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA
CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN
IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ
PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

Inventor: **MARTIN M N**

Abstract (Basic):

... enhances production efficiency, and is economical. A
semiconductor device is produced quickly without using specialized
integrated circuit manufacturing processes or wet chemical etchants
during fabrication. The etched device is capable of being...

7/3,K/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

014605152 **Image available**
WPI Acc No: 2002-425856/ 200245
XRAM Acc No: C02-120617
XRPX Acc No: N02-334868

**Irreversible humidity indicator card for electronic component storage
container, has intermediate carrier with deliquescent salt provided holes
which are covered by darkened blotting paper**

Patent Assignee: SUED-CHEMIE INC (SUDC); SUD-CHEMIE INC (SUDC)

Inventor: **DICK S ; MARTIN M B ; ROBERTSON A J**

Number of Countries: 020 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200223183	A2	20020321	WO 2001US28002	A	20010907	200245 B
EP 1305621	A2	20030502	EP 2001972954	A	20010907	200331
			WO 2001US28002	A	20010907	

Priority Applications (No Type Date): US 2000660560 A 20000912

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes
WO 200223183 A2 E 28 G01N-031/22
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
MC NL PT SE TR
EP 1305621 A2 E G01N-031/22 Based on patent WO 200223183
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI
LU MC NL PT SE TR
**Irreversible humidity indicator card for electronic component storage
container, has intermediate carrier with deliquescent salt provided holes
which are covered by darkened...**
Inventor: DICK S ...

... MARTIN M B

Abstract (Basic):

... For indicating the humidity level of an **electronic component**
shipping and storage container...

...indicator card does not produce paper fibers or lint during use,
preventing damage to the **electronic components** provided inside the
storage containers...

7/3,K/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

013250616 **Image available**
WPI Acc No: 2000-422499/ 200036
XRPX Acc No: N00-315304

**Contactless integrated circuit with reduced power consumption;
delivers pulse width modulated signal, whose duration is established in
asynchronous manner by load or discharge of capacitor**
Patent Assignee: INSIDE TECHNOLOGIES (INSI-N); INSIDE TECHNOLOGIES SA
(INSI-N); BERGOUIGNAN F (BERG-I); MARTIN M (MART-I); PANGAUD N (PANG-I);
SERRA D (SERR-I)

Inventor: BERGOUIGNAN F; MARTIN M ; PANGAUD N; SERRA D

Number of Countries: 031 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200025253	A1	20000504	WO 99FR2569	A	19991022	200036 B
FR 2785068	A1	20000428	FR 9813470	A	19981023	200036
AU 200022557	A	20000515	AU 200022557	A	19991022	200039
EP 1131773	A1	20010912	EP 99950810	A	19991022	200155
			WO 99FR2569	A	19991022	
CN 1324468	A	20011128	CN 99812326	A	19991022	200219
US 20020022454	A1	20020221	WO 99FR2569	A	19991022	200221
			US 2001840244	A	20010423	
EP 1131773	B1	20020828	EP 99950810	A	19991022	200264
			WO 99FR2569	A	19991022	
JP 2002528826	W	20020903	WO 99FR2569	A	19991022	200273
			JP 2000578768	A	19991022	
DE 69902685	E	20021002	DE 602685	A	19991022	200273
			EP 99950810	A	19991022	
			WO 99FR2569	A	19991022	

Priority Applications (No Type Date): FR 9813470 A 19981023

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes
WO 200025253 A1 F 38 G06K-007/00

Designated States (National): AU CA CN JP KR US
 Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
 MC NL PT SE
 FR 2785068 A1 G06K-007/00
 AU 200022557 A G06K-007/00 Based on patent WO 200025253
 EP 1131773 A1 F G06K-007/00 Based on patent WO 200025253
 Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
 LI LT LU LV MC MK NL PT RO SE SI
 CN 1324468 A G06K-007/00
 US 20020022454 A1 H04B-005/00 Cont of application WO 99FR2569
 EP 1131773 B1 F G06K-007/00 Based on patent WO 200025253
 Designated States (Regional): CH DE ES FR GB IT LI NL
 JP 2002528826 W 32 G06K-019/07 Based on patent WO 200025253
 DE 69902685 E G06K-007/00 Based on patent EP 1131773
 Based on patent WO 200025253

**Contactless integrated circuit with reduced power consumption;
 delivers pulse width modulated signal, whose duration is established in
 asynchronous...**

...Inventor: **MARTIN M**

Abstract (Basic):

... The IC includes a load modulation circuit (LMC) for modulating
 a load of an antenna coil (Ls...

... In contactless integrated circuits used in smart cards,
 electronic labels, electronic badges etc...

7/3,K/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2003 Thomson Derwent. All rts. reserv.

013120635 **Image available**

WPI Acc No: 2000-292506/ 200025

XRAM Acc No: C00-088267

**New phenyl xanthine derivatives, useful for treating e.g. inflammatory
 conditions, immune disorders and cancer, and use of a cell adhesion
 molecule inhibitor for treating periodontal disease**

Patent Assignee: GLAXO GROUP LTD (GLAX); DALUGE S M (DALU-I); JURGENSEN C
 H (JURG-I); MARTIN M T (MART-I); OSTERHOUT M H (OSTE-I); SMITHKLINE
 BEECHAM CORP (SMIK)

Inventor: DALUGE S M; JURGENSEN C H; **MARTIN M T** ; OSTERHOUT M H; OSTEHOUT
 M H

Number of Countries: 089 Number of Patents: 016

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200009507	A1	20000224	WO 99EP5814	A	19990811	200025 B
AU 9957323	A	20000306	AU 9957323	A	19990811	200030
BR 9913020	A	20010508	BR 9913020	A	19990811	200129
			WO 99EP5814	A	19990811	
NO 200100715	A	20010402	WO 99EP5814	A	19990811	200131
			NO 2001715	A	20010212	
EP 1104422	A1	20010606	EP 99944358	A	19990811	200133
			WO 99EP5814	A	19990811	
CZ 200100552	A3	20010711	WO 99EP5814	A	19990811	200147
			CZ 2001552	A	19990811	
SK 200100222	A3	20011203	WO 99EP5814	A	19990811	200203
			SK 2001222	A	19990811	
CN 1323309	A	20011121	CN 99811969	A	19990811	200218
KR 2001085369	A	20010907	KR 2001701799	A	20010212	200218
ZA 200101186	A	20020424	ZA 20011186	A	20010212	200237

MX 2001001632	A1	20010801	MX 20011632	A	20010213	200238
HU 200103637	A2	20020628	WO 99EP5814	A	19990811	200255
			HU 20013637	A	19990811	
JP 2002522542	W	20020723	WO 99EP5814	A	19990811	200263
			JP 2000564958	A	19990811	
US 20030032804	A1	20030213	WO 99EP5814	A	19990811	200314
			US 2001762559	A	20010209	
			US 2002106772	A	20020326	
US 6608069	B1	20030819	WO 99EP5814	A	19990811	200356
			US 2001762559	A	20010209	
NZ 509778	A	20030829	NZ 509778	A	19990811	200365
			WO 99EP5814	A	19990811	

Priority Applications (No Type Date): GB 9817623 A 19980813

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200009507 A1 E 101 C07D-473/06

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN
CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP
KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR
IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU 9957323 A Based on patent WO 200009507

BR 9913020 A C07D-473/06 Based on patent WO 200009507

NO 200100715 A C07D-000/00

EP 1104422 A1 E C07D-473/06 Based on patent WO 200009507

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

CZ 200100552 A3 C07D-473/06 Based on patent WO 200009507

SK 200100222 A3 C07D-473/06 Based on patent WO 200009507

CN 1323309 A C07D-473/06

KR 2001085369 A C07D-473/06

ZA 200101186 A 110 C07D-000/00

MX 2001001632 A1 A61K-031/522

HU 200103637 A2 C07D-473/06 Based on patent WO 200009507

JP 2002522542 W 125 C07D-473/06 Based on patent WO 200009507

US 20030032804 A1 A61K-031/52 Div ex application WO 99EP5814
Div ex application US 2001762559

US 6608069 B1 A61K-031/522 Based on patent WO 200009507

NZ 509778 A C07D-473/06 Based on patent WO 200009507

...Inventor: MARTIN M T

Extension Abstract:

... tetrahydro-2,6-dioxo-9H-purin-8-yl)cinnamic acid nonaethylene
glycol methyl ether ester (Ic).

...tetrahydro-2,6-dioxo-9H-purin-8-yl)cinnamic acid nonaethylene glycol
methyl ether ester (Ic) (0.4 g, 59 %).

7/3,K/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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012383192 **Image available**

WPI Acc No: 1999-189299/ 199916

XRPX Acc No: N99-138461

Packaging container for integrated circuits (ICs)

Patent Assignee: HUMIDIAL CORP (HUMI-N)

Inventor: BELTRAN M; MARTIN M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5875892	A	19990302	US 97781479	A	19970110	199916 B

Priority Applications (No Type Date): US 97781479 A 19970110

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5875892	A	12	B65D-085/00		

Packaging container for integrated circuits (ICs)
...Inventor: MARTIN M

7/3,K/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2003 Thomson Derwent. All rts. reserv.

011728895 **Image available**

WPI Acc No: 1998-145805/ 199813

XRPX Acc No: N98-115333

Integrated circuit for non-contact operation of smart card - includes
coil forming part of resonant circuit with clock inputs and charge pump
circuit conveying signals to circuit without connections

Patent Assignee: INSIDE TECHNOLOGIES (INSI-N); INSIDE TECHNOLOGIES SA
(INSI-N)

Inventor: KOWALSKI J; MARTIN M ; MARTIN M R

Number of Countries: 079 Number of Patents: 011

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9806056	A1	19980212	WO 97FR1128	A	19970625	199813 B
FR 2752318	A1	19980213	FR 969909	A	19960806	199814
AU 9734481	A	19980225	AU 9734481	A	19970625	199829
EP 948775	A1	19991013	EP 97930581	A	19970625	199947
			WO 97FR1128	A	19970625	
US 5982647	A	19991109	WO 97FR1128	A	19970625	199954
			US 99237108	A	19990126	
CN 1231751	A	19991013	CN 97198297	A	19970625	200008
KR 2000029490	A	20000525	WO 97FR1128	A	19970625	200110
			KR 99700512	A	19990122	
JP 2001505345	W	20010417	WO 97FR1128	A	19970625	200128
			JP 98507655	A	19970625	
EP 948775	B1	20010530	EP 97930581	A	19970625	200131
			WO 97FR1128	A	19970625	
AU 733680	B	20010524	AU 9734481	A	19970625	200136
DE 69705065	E	20010705	DE 605065	A	19970625	200146
			EP 97930581	A	19970625	
			WO 97FR1128	A	19970625	

Priority Applications (No Type Date): FR 969909 A 19960806

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9806056	A1	F	21	G06K-007/00	

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG
US UZ VN YU

Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GR IE IT
KE LS LU MC MW NL OA PT SD SE SZ UG ZW

FR 2752318 A1 G06K-007/08

AU 9734481 A G06K-007/00 Based on patent WO 9806056
 EP 948775 A1 F G06K-007/00 Based on patent WO 9806056
 Designated States (Regional): AT BE CH DE ES FR GB IT LI NL
 US 5982647 A H02M-003/07 Cont of application WO 97FR1128
 CN 1231751 A G06K-007/00
 KR 2000029490 A G06K-019/07 Based on patent WO 9806056
 JP 2001505345 W 20 G11C-016/06 Based on patent WO 9806056
 EP 948775 B1 F G06K-007/00 Based on patent WO 9806056
 Designated States (Regional): AT BE CH DE ES FR GB IT LI NL
 AU 733680 B G06K-007/00 Previous Publ. patent AU 9734481
 Based on patent WO 9806056
 DE 69705065 E G06K-007/00 Based on patent EP 948775
 Based on patent WO 9806056

Integrated circuit for non-contact operation of smart card...
 ...Inventor: MARTIN M ...

... MARTIN M R

...Abstract (Basic): The integrated circuit is operated by at least one coil (L) forming a tuned resonant circuit with a...

...terminals of the coil (L), at least during periods of non-contact operation of the integrated circuit .

...

...controlled switches are controlled by a signal representative of the mode of operation of the integrated circuit .

7/3,K/7 (Item 7 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
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011714067 **Image available**
 WPI Acc No: 1998-130977/ 199812
 XRPX Acc No: N98-103337

Programmable switch system for adjusting characteristics of integrated circuit - has series of capacitance elements controlled by programmed switches to provide calibrated characteristics for circuit

Patent Assignee: INSIDE TECHNOLOGIES (INSI-N); INSIDE TECHNOLOGIES SA (INSI-N)

Inventor: KOWALSKI J; MARTIN M ; MARTIN M R

Number of Countries: 077 Number of Patents: 011

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9805123	A1	19980205	WO 97FR1258	A	19970710	199812 B
FR 2752115	A1	19980206	FR 969910	A	19960731	199813
AU 9736260	A	19980220	AU 9736260	A	19970710	199828
EP 916186	A1	19990519	EP 97932881	A	19970710	199924
			WO 97FR1258	A	19970710	
CN 1227015	A	19990825	CN 97196957	A	19970710	199952
US 6034446	A	20000307	WO 97FR1258	A	19970710	200019
			US 99226546	A	19990107	
JP 2000516036	W	20001128	WO 97FR1258	A	19970710	200065
			JP 98508539	A	19970710	
EP 916186	B1	20001213	EP 97932881	A	19970710	200066
			WO 97FR1258	A	19970710	
KR 2000029445	A	20000525	WO 97FR1258	A	19970710	200110
			KR 99700398	A	19990119	

DE 69703693	E	20010118	DE 603693 °	A	19970710	200111
			EP 97932881	A	19970710	
			WO 97FR1258	A	19970710	
AU 740796	B	20011115	AU 9736260	A	19970710	200202

Priority Applications (No Type Date): FR 969910 A 19960731

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9805123	A1	F	25	H03K-017/94	
Designated States (National): AL AM AT AU AZ BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU					
Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
FR 2752115	A1			H03K-017/94	
AU 9736260	A				Based on patent WO 9805123
EP 916186	A1	F			Based on patent WO 9805123
Designated States (Regional): AT BE CH DE ES FR GB IT LI NL					
US 6034446	A			H03K-003/00	Cont of application WO 97FR1258
JP 2000516036	W		25	H01L-027/04	Based on patent WO 9805123
EP 916186	B1	F		H03K-017/94	Based on patent WO 9805123
Designated States (Regional): AT BE CH DE ES FR GB IT LI NL					
KR 2000029445	A			H03K-017/687	Based on patent WO 9805123
DE 69703693	E			H03K-017/94	Based on patent EP 916186
					Based on patent WO 9805123
AU 740796	B			H03K-017/94	Previous Publ. patent AU 9736260
					Based on patent WO 9805123

Programmable switch system for adjusting characteristics of integrated circuit -

...Inventor: **MARTIN M ...**

... **MARTIN M R**

...Abstract (Basic): The **integrated circuit** comprises a resonant circuit (L,20) for receiving alternating voltage (Vac) by electromagnetic induction. The...

...ADVANTAGE - Programmable capacitance allows **integrated circuit** to be calibrated with precision...

7/3,K/8 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011693922 **Image available**

WPI Acc No: 1998-110832/ 199810

XRPX Acc No: N98-088660

Demodulator for signal received in coil with current limitation - using one demodulator during normal reception and second demodulator during periods of current limitation

Patent Assignee: INSIDE TECHNOLOGIES SA (INSI-N)

Inventor: **MARTIN M** ; SERRA D; **MARTIN M R**

Number of Countries: 077 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9802840	A1	19980122	WO 97FR1051	A	19970612	199810 B
FR 2751148	A1	19980116	FR 969034	A	19960712	199810
AU 9733475	A	19980209	AU 9733475	A	19970612	199823

Priority Applications (No Type Date): FR 969034 A 19960712

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9802840 A1 F 30 G06K-007/08

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US
UZ VN YU

Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GR IE IT
KE LS LU MC MW NL OA PT SD SE SZ UG ZW

AU 9733475 A G06K-007/08 Based on patent WO 9802840

FR 2751148 A1 H03D-001/00

Inventor: MARTIN M ...

... MARTIN M R

...Abstract (Basic): USE - For IC card reader...

7/3,K/9 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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008769908 **Image available**

WPI Acc No: 1991-273922/ 199137

XRPX Acc No: N91-209097

Marking technique for identifying IC components - trimming resistors at
wafer stage to produce voltages at nodal points having magnitudes which
uniquely identify each particular chip

Patent Assignee: ANALOG DEVICES INC (ANLG)

Inventor: AMAZEEN B E; MARTIN M M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5043657	A	19910827	US 90553533	A	19900713	199137 B

Priority Applications (No Type Date): US 90553533 A 19900713

Marking technique for identifying IC components...

...Inventor: MARTIN M M

...Abstract (Basic): The IC marking method comprises the steps of forming
on each chip at least one circuit element additional to the integrated
circuitry, and trimming a parameter of each additional circuit
element while making measurements of an electrical...

...Title Terms: IC ;

7/3,K/10 (Item 10 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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008503702 **Image available**

WPI Acc No: 1991-007786/ 199102

XRAM Acc No: C91-003430

XRPX Acc No: N91-006105

Electrical coating of conductive components - by dip-coating anode in
bath of coating material contg. solvent and hydrophobic silica, which is
in contact with cathode

Patent Assignee: BOHME K D (BOHM-I)

Inventor: BOHME K D; ECKERT B; HEUBACH H; HOLZMULLER K; **MARTIN M**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DD 281314	A	19900808	DD 235455	A	19811205	199102 B

Priority Applications (No Type Date): DD 235455 A 19811205

...Inventor: **MARTIN M**

...Abstract (Basic): USE/ADVANTAGE - The process is useful for coating electrically conducting sheet, sections, etc. (esp. electrical/**electronic components**), for protection against external effects, electrical insulation and mechanical stabilisation. It enables the rapid prodn...

7/3,K/11 (Item 11 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2003 Thomson Derwent. All rts. reserv.

007672783 **Image available**

WPI Acc No: 1988-306715/ **198843**

Related WPI Acc No: 1990-044075

XRPX Acc No: N88-232645

Self-contained renewable energy system - includes solar powered and wind driven engine and produces carbon dioxide and hydrogen which generates methanol

Patent Assignee: PERRY OCEANOGRAPHICS INC (PERR-N); PERRY OCEANOGRAPH (PERR-N)

Inventor: BHATT B K; CAMPBELL P G; CAPPS J; ELDRIDGE P M; GREINER L; LOCKYER R W; **MARTIN M** ; MCNEICE R R; MISIASZEK S M; PERRY J H; PERRY S S ; SULLIVAN T F

Number of Countries: 002 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4776171	A	19881011	US 86931464	A	19861114	198843 B
CA 1334979	C	19950328	CA 551960	A	19871116	199520

Priority Applications (No Type Date): US 86931464 A 19861114

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4776171	A		40		
CA 1334979	C			C07C-029/151	

...Inventor: **MARTIN M**

...Abstract (Basic): to the desalinator. Water is electrolysed and carbon dioxide and methanol generators are provided. An IC engine is connected to the methanol store and the system is adjacent a saline water...

7/3,K/12 (Item 12 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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007130155

WPI Acc No: 1987-130152/ **198719**

XRPX Acc No: N87-097324

Convective heat sink for electronic component - has lattice profile formed on heat sink block to provide large surface area

Patent Assignee: DELAT-ELEKTROAKUSTI (DELA-N)
Inventor: DAUB D; **MARTIN M** ; NEEF K G
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 3539161	A	19870507	DE 3539161	A	19851105	198719 B

Priority Applications (No Type Date): DE 3539161 A 19851105

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 3539161	A		5		

Convective heat sink for electronic component -
...Inventor: **MARTIN M**

7/3,K/13 (Item 13 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

003804814

WPI Acc No: 1983-801055/ 198343

XRAM Acc No: C83-104637

Oil soluble star-shaped polymers - made by contacting living polymer of polydiene and monoalkenyl arene with polyalkenyl aromatic coupler reacting with polar monomer etc.

Patent Assignee: SHELL OIL CO (SHEL)

Inventor: **MARTIN M K**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4409120	A	19831011				198343 B

Priority Applications (No Type Date): US 82404191 A 19820802; US 81332692 A 19811221

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4409120	A		7		

Inventor: **MARTIN M K**

...Abstract (Basic): The prods. are esp. useful as viscosity improving and dispersant additives in lubricating oils for IC engines...

7/3,K/14 (Item 14 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

003305302

WPI Acc No: 1982-F3313E/ 198218

Silencer diffuser for IC -engine - has truncated conical plate with diffuser portion downstream to reduce noise and back pressure

Patent Assignee: MARTIN M M (MART-I)

Inventor: **MARTIN M M**

Number of Countries: 002 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4325459	A	19820420				198218 B
CA 1160162	A	19840110				198407

Priority Applications (No Type Date): US 80192435 A 19800929

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4325459	A		5		

Silencer diffuser for IC -engine...

Inventor: **MARTIN M M**

...Title Terms: IC ;

Set	Items	Description
S1	73	AU=(DICK S? OR DICK, S? OR DICK S OR DICK, S OR DICK S. OR DICK, S. OR DICK SO OR DICK, SO OR DICK S.O. OR DICK, S.O. OR DICK STEFAN OR DICK, STEFAN)
S2	389	AU=(MARTIN M? OR MARTIN, M? OR MARTIN M OR MARTIN, M OR MARTIN M. OR MARTIN, M. OR MARTIN MB OR MARTIN, MB OR MARTIN M.-B. OR MARTIN, M.B. OR MARTIN MICHELL OR MARTIN, MICHELLE)
S3	4	AU=(NOBILET R? OR NOBILET, R? OR NOBILET R OR NOBILET, R OR NOBILET R. OR NOBILET, R. OR NOBILET ROGER OR NOBILET, ROGER)
S4	4	AU=(BOUVIER F? OR BOUVIER, F? OR BOUVIER F OR BOUVIER, F OR BOUVIER F. OR BOUVIER, F. OR BOUVIER FREDERIC OR BOUVIER, FREDERIC)
S5	468	S1:S4
S6	44	S5 AND (IC OR INTEGRATED()CIRCUIT? OR CIRCUIT()CHIP? OR SEMICONDUCTOR()CHIP? OR SILICON()CHIP? OR SMD OR SURFACE()MOUNT-?()DEVICE? OR ELECTRONIC()COMPONENT?)
S7	41	S6 AND PY<2003

? show files

File 348:EUROPEAN PATENTS 1978-2003/Nov W03

(c) 2003 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20031127,UT=20031120

(c) 2003 WIPO/Univentio

? pause

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7/3, TI/16 (Item 6 from file: 349)
DIALOG(R) File 349: PCT FULLTEXT
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00889084

IRREVERSIBLE HUMIDITY INDICATOR CARDS

CARTES INDIQUANT L'HUMIDITE DE MANIERE IRREVERSIBLE

Patent Applicant/Assignee:

SUD-CHEMIE INC, P.O. Box 32370, 1600 W. Hill Street, Louisville, KY
40232-2370, US, US (Residence), US (Nationality)

Inventor(s):

DICK Stefan, 8204 William Moyers Ave., NE, Albuquerque, NW 87122, US,
ROBERTSON Andrew J, 900 Lagunayra NE, Albuquerque, NM 87108, US,
MARTIN Michelle B, 2450 Verna Court, Palm Springs, CA 92262, US

Legal Representative:

COX Scott R (agent), Lynch, Cox, Gilman & Mahan, P.S.C., 400 West Market
Street, Suite 2200, Louisville, KY 40202, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200223183 A2-A3 **20020321** (WO 0223183)

Application: WO 2001US28002 20010907 (PCT/WO US0128002)

Priority Application: US 2000660560 20000912

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

Publication Language: English

Filing Language: English

Fulltext Word Count: 4853

Set	Items	Description
S1	310	AU=(DICK S? OR DICK, S? OR DICK S OR DICK, S OR DICK S. OR DICK, S. OR DICK SO OR DICK, SO OR DICK S.O. OR DICK, S.O. OR DICK STEFAN OR DICK, STEFAN)
S2	9610	AU=(MARTIN M? OR MARTIN, M? OR MARTIN M OR MARTIN, M OR MARTIN M. OR MARTIN, M. OR MARTIN MB OR MARTIN, MB OR MARTIN M.-B. OR MARTIN, M.B. OR MARTIN MICHELL OR MARTIN, MICHELLE)
S3	0	AU=(NOBILET R? OR NOBILET, R? OR NOBILET R OR NOBILET, R OR NOBILET R. OR NOBILET, R. OR NOBILET ROGER OR NOBILET, ROGER)
S4	100	AU=(BOUVIER F? OR BOUVIER, F? OR BOUVIER F OR BOUVIER, F OR BOUVIER F. OR BOUVIER, F. OR BOUVIER FREDERIC OR BOUVIER, FREDERIC)
S5	10020	S1:S4
S6	31	S5 AND (IC OR INTEGRATED()CIRCUIT? OR CIRCUIT()CHIP? OR SEMICONDUCTOR()CHIP? OR SILICON()CHIP? OR SMD OR SURFACE()MOUNT-?()DEVICE? OR ELECTRONIC()COMPONENT?)
S7	29	S6 AND PY<2003
S8	25	RD (unique items)
? show files		
File	94:	JICST-EPlus 1985-2003/Nov W5 (c)2003 Japan Science and Tech Corp(JST)
File	95:	TEME-Technology & Management 1989-2003/Nov W2 (c) 2003 FIZ TECHNIK
File	99:	Wilson Appl. Sci & Tech Abs 1983-2003/Oct (c) 2003 The HW Wilson Co.
File	35:	Dissertation Abs Online 1861-2003/Oct (c) 2003 ProQuest Info&Learning
File	111:	TGG Natl.Newspaper Index(SM) 1979-2003/Nov 24 (c) 2003 The Gale Group
File	583:	Gale Group Globalbase(TM) 1986-2002/Dec 13 (c) 2002 The Gale Group
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File	434:	SciSearch(R) Cited Ref Sci 1974-1989/Dec (c) 1998 Inst for Sci Info
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File	473:	FINANCIAL TIMES ABSTRACTS 1998-2001/APR 02 (c) 2001 THE NEW YORK TIMES
File	474:	New York Times Abs 1969-2003/Nov 29 (c) 2003 The New York Times
File	475:	Wall Street Journal Abs 1973-2003/Nov 26 (c) 2003 The New York Times
File	481:	DELPHEs Eur Bus 95-2003/Nov W2 (c) 2003 ACFCI & Chambre CommInd Paris
File	484:	Periodical Abs Plustext 1986-2003/Nov W4 (c) 2003 ProQuest

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8/8,AU/1 (Item 1 from file: 95)
DIALOG(R)File 95:(c) 2003 FIZ TECHNIK. All rts. reserv.

00700663 E93077028202

Integrierte Vorgehensweise fuer das Design von ASICs und Leiterplatten
Larreur, J-C; Martin, M-J
1992

DESCRIPTORS: PC--PRINTED CIRCUITS; CIRCUIT DESIGN; CIRCUIT SIMULATION; IC
-- **INTEGRATED CIRCUITS** ; SEMICONDUCTOR TECHNOLOGY; MICROELECTRONICS;
DESIGN--CONSTRUCTION; GRAND SCALE INTEGRATION; APPLICATION SPECIFIC
INTEGRATED CIRCUITS ; COMPUTER AIDED DESIGN
IDENTIFIERS: ASIC DESIGN; Integrierter Schaltungsentwurf; VLSI-Schaltung

8/8,AU/2 (Item 1 from file: 35)
DIALOG(R)File 35:(c) 2003 ProQuest Info&Learning. All rts. reserv.

01737330 AADAAI9964157

**Integrated circuit design considerations for spacecraft VLSI
implemented in standard CMOS processes**

Author: Martin, Mark Noel

Year: 2000

Descriptors: ENGINEERING, ELECTRONICS AND ELECTRICAL ; ENGINEERING,
AEROSPACE

Descriptor Codes: 0544; 0538

8/8,AU/3 (Item 2 from file: 35)
DIALOG(R)File 35:(c) 2003 ProQuest Info&Learning. All rts. reserv.

01592401 AAD9728254

**CONTRIBUTIONS OF ASPARTYL RESIDUES GAMMAD174 AND DELTAD180 TO THE BINDING
SITE OF THE ACETYLCHOLINE RECEPTOR**

Author: MARTIN, MERRILL DIANE

Year: 1997

Descriptors: CHEMISTRY, BIOCHEMISTRY ; BIOLOGY, NEUROSCIENCE

Descriptor Codes: 0487; 0317

8/8,AU/4 (Item 1 from file: 34)
DIALOG(R)File 34:(c) 2003 Inst for Sci Info. All rts. reserv.

10470267 Genuine Article#: 531KQ Number of References: 98

**Title: Field measurement of acid gases and soluble anions in atmospheric
particulate matter using a parallel plate wet denuder and an
alternating filter-based automated analysis system (ABSTRACT AVAILABLE -
)**

Author(s): Boring CB; Al-Horr R; Genfa Z; Dasgupta PK (REPRINT) ; Martin
MW ; Smith WF

Publication date: 20020315

Journal Subject Category: CHEMISTRY, ANALYTICAL

Identifiers--KeyWord Plus(R): FLAME PHOTOMETRIC DETECTION; CONTROLLED
THERMODENUDER SYSTEM; DEPOSITED AEROSOL-PARTICLES; CUTPOINT VIRTUAL
IMPACTOR; REAL-TIME MEASUREMENT; ION CHROMATOGRAPHY; MASS-SPECTROMETRY;
AMBIENT AEROSOL; SULFURIC-ACID; NITRIC-ACID

8/8,AU/5 (Item 2 from file: 34)
DIALOG(R)File 34:(c) 2003 Inst for Sci Info. All rts. reserv.

08719872 Genuine Article#: 321ML Number of References: 30
Title: Mice deficient for delta- and gamma-opioid receptors exhibit opposing alterations of emotional responses (ABSTRACT AVAILABLE)
Author(s): Filliol D; Ghozland S; Chluba J; **Martin M** ; Matthes HWD; Simonin F; Befort K; GaveriauxRuff C; Dierich A; LeMeur M; Valverde O; Maldonado R; Kieffer BL (REPRINT)
Publication date: 20000600
Journal Subject Category: GENETICS & HEREDITY
Identifiers--KeyWord Plus(R): ENDOGENOUS ENKEPHALINS; ANXIETY; LACKING; PAIN; RAT; ANTIDEPRESSANTS; INVOLVEMENT; EXPRESSION; WITHDRAWAL; ANALGESIA

8/8,AU/6 (Item 3 from file: 34)
DIALOG(R)File 34:(c) 2003 Inst for Sci Info. All rts. reserv.

07862727 Genuine Article#: 216WY Number of References: 9
Title: A large-acceptance spectrometer for tracking in a high-multiplicity environment, based on space point measurements and high-resolution time-of-flight (ABSTRACT AVAILABLE)
Author(s): Carlen L; ElChenawi K; Chujo T; Enosawa K; Garpman S; Gustafsson HA; Kurata M; Kurita K; Lohner H; **Martin M** ; Miake Y; Miyamoto Y; Naef H; Nilsson P; Nishimura S; Nystrand J; Oskarsson A; Osterman L; Otterlund I; Perrin E; Rosselet L; Rubio JM; Sako H; Sato S; Silvermyr D (REPRINT) ; Soderstrom K; Solomey N; Stenlund E; Svensson T; Voros S; Yagi K; Yokota Y
Publication date: 19990711
Journal Subject Category: NUCLEAR SCIENCE & TECHNOLOGY; PHYSICS, PARTICLES & FIELDS; INSTRUMENTS & INSTRUMENTATION; SPECTROSCOPY
Descriptors--Author Keywords: multi-step avalanche chamber ; pad readout ; streamer tubes ; time-of-flight ; tracking ; particle identification
Identifiers--KeyWord Plus(R): 2-DIMENSIONAL ELECTRONIC READOUT; AVALANCHE CHAMBERS

8/8,AU/7 (Item 4 from file: 34)
DIALOG(R)File 34:(c) 2003 Inst for Sci Info. All rts. reserv.

06759925 Genuine Article#: ZQ095 Number of References: 15
Title: Magnetization reversal measurements of size-selected iron oxide particles produced via an aerosol route (ABSTRACT AVAILABLE)
Author(s): Schleicher B (REPRINT) ; Tapper U; Kauppinen EI; **Martin M** ; Roschier L; Paalanen M; Wernsdorfer W; Benoit A
Publication date: 19980500
Journal Subject Category: CHEMISTRY, APPLIED; CHEMISTRY, INORGANIC & NUCLEAR
Descriptors--Author Keywords: magnetization reversal ; iron oxide particles ; SQUID ; atomic force microscopy
Identifiers--KeyWord Plus(R): ATOMIC-FORCE MICROSCOPE

8/8,AU/8 (Item 5 from file: 34)
DIALOG(R)File 34:(c) 2003 Inst for Sci Info. All rts. reserv.

05624801 Genuine Article#: WK737 Number of References: 0
Title: Upgrading instrumentation control systems for plant safety and operation (ABSTRACT AVAILABLE)
Author(s): **Martin M (REPRINT)** ; Prehler HJ; Schramm W
Publication date: 19970200
Journal Subject Category: NUCLEAR SCIENCE & TECHNOLOGY

8/8,AU/9 (Item 6 from file: 34)
DIALOG(R)File 34:(c) 2003 Inst for Sci Info. All rts. reserv.

04710865 Genuine Article#: UC410 Number of References: 7
Title: **CYTOTOXIC CYCLOARTANES FROM AGLAIA-ARGENTEA** (Abstract Available)
Author(s): OMOBUWAJO OR; **MARTIN MT** ; PERROMAT G; SEVENET T; AWANG K; PAIS
M
Journal Subject Category: PLANT SCIENCES
Descriptors--Author Keywords: AGLAIA ARGENTEA ; MELIACEAE ; CYCLOARTANE ;
TRITERPENOID ; CYTOTOXICITY ; STRUCTURAL ELUCIDATION

8/8,AU/10 (Item 7 from file: 34)
DIALOG(R)File 34:(c) 2003 Inst for Sci Info. All rts. reserv.

02642888 Genuine Article#: LT326 Number of References: 15
Title: **ULTRATRACE ANION ANALYSIS OF HIGH-PURITY WATER - A COLUMN COMPARISON**
(Abstract Available)
Author(s): **MARTIN MW** ; GIACOFEI RA
Journal Subject Category: CHEMISTRY, ANALYTICAL
Identifiers--KeyWords Plus: PUMP PRECONCENTRATION SYSTEM; ION
CHROMATOGRAPHY; SAMPLE PRECONCENTRATION; INORGANIC ANIONS

8/8,AU/11 (Item 1 from file: 65)
DIALOG(R)File 65:(c) 2003 BLDSC all rts. reserv. All rts. reserv.

04298688 INSIDE CONFERENCE ITEM ID: CN045025172
Evaluation of Hotlink Assignment Heuristics for Improving Web Access
Czyzowicz, J.; Kranakis, E.; Krizanc, D.; Pelc, A.; **Martin, M. V.**
CONFERENCE: International conference on internet computing; IC' 2001-2nd
CONFERENCE EDITOR(S): Graham, P.; Maheswaran, M.; Eskicioglu, R.
(200106) (200106)
DESCRIPTORS: internet computing; **IC** ; computing

8/8,AU/12 (Item 1 from file: 8)
DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

06051317
Title: **Simulation and verification of the hot carrier degradation behavior in an analog high-voltage device with graded channel profile**
Author: Thoma, Rainer; Zhao, Hui; **Martin, Matthew** ; Kyono, Carl
Publication Year: 2002
Descriptors: MOSFET devices; Hot carriers; CMOS **integrated circuits** ;
Electric potential; Semiconductor doping; Gates (transistor)
Identifiers: High-voltage devices
Classification Codes:
714.2 (Semiconductor Devices & Integrated Circuits); 701.1
(Electricity, Basic Concepts & Phenomena); 712.1 (Semiconducting
Materials)
714 (Electronic Components & Tubes); 701 (Electricity & Magnetism); 712
(Electronic & Thermionic Materials)
71 (ELECTRONICS & COMMUNICATION ENGINEERING); 70 (ELECTRICAL
ENGINEERING, GENERAL)

8/8,AU/13 (Item 2 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

06009703

Title: RF noise in a short-channel n-MOSFET: A Monte Carlo study

Author: Rengel, R.; Mateos, J.; Pardo, D.; Gonzalez, T.; Martin, M.J.

Conference Title: Proceedings of the 11th International Symposium on Ultrafast Phenomena in Semiconductors (11-UFPS)

Publication Year: 2002

Descriptors: MOSFET devices; Monte Carlo methods; Semiconductor devices; Spurious signal noise; Frequencies; CMOS integrated circuits ; Gates (transistor); Electron transport properties; Carrier concentration; Semiconductor doping; Computer simulation; Mathematical models; Hot carriers

Identifiers: Radio frequency noise; Short-channel effect; Noise parameters; Submicron devices; Microscopic random phenomena; Doping concentration

Classification Codes:

714.2 (Semiconductor Devices & Integrated Circuits); 922.2 (Mathematical Statistics); 701.1 (Electricity, Basic Concepts & Phenomena); 931.3 (Atomic & Molecular Physics); 723.5 (Computer Applications); 921.6 (Numerical Methods)

714 (Electronic Components & Tubes); 922 (Statistical Methods); 701 (Electricity & Magnetism); 931 (Applied Physics Generally); 723 (Computer Software, Data Handling & Applications); 921 (Applied Mathematics)

71 (ELECTRONICS & COMMUNICATION ENGINEERING); 92 (ENGINEERING MATHEMATICS); 70 (ELECTRICAL ENGINEERING, GENERAL); 93 (ENGINEERING PHYSICS); 72 (COMPUTERS & DATA PROCESSING)

8/8,AU/14 (Item 3 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

05890750

Title: A2. Micro digital solar attitude detector

Author: Strohbehn, K.; Martin, M.N. ; Jaskulek, S.E.

Publication Year: 2001

Descriptors: Application specific integrated circuits ; Spacecraft instruments; Microcontrollers; Digital control systems; Image sensors; Interfaces (computer); Charge coupled devices; CMOS integrated circuits ; Digital signal processing

Identifiers: Micro digital solar attitude detector; Microsatellites; Medium resolution imager

Classification Codes:

714.2 (Semiconductor Devices & Integrated Circuits); 655.1 (Spacecraft, General); 732.1 (Control Equipment); 731.1 (Control Systems); 741.3 (Optical Devices & Systems); 722.2 (Computer Peripheral Equipment)

714 (Electronic Components & Tubes); 655 (Spacecraft); 732 (Control Devices); 731 (Automatic Control Principles & Applications); 741 (Light, Optics & Optical Devices); 722 (Computer Hardware)

71 (ELECTRONICS & COMMUNICATION ENGINEERING); 65 (AEROSPACE ENGINEERING); 73 (CONTROL ENGINEERING); 74 (LIGHT & OPTICAL TECHNOLOGY); 72 (COMPUTERS & DATA PROCESSING)

8/8,AU/15 (Item 4 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

05124157

Title: Fabrication and test of a 70 000 channels electronic pad readout system for multi-step avalanche chambers

Author: Carlen, L.; El Chenawi, K.; Dalstra, J.; Fransens, J.R.; Garpman, S.; Gustafsson, H.-A.; Hasper, H.; Kolb, B.; Lohner, H.; Louw, S.; **Martin, M.**; Miake, Y.; Naef, H.; Nilsson, P.; Nystrand, J.; et al

Publication Year: 1998

Descriptors: Readout systems; Electronic equipment; VLSI circuits; Application specific **integrated circuits**; Integrated circuit testing

Identifiers: Electronic pad readout system; Multi step avalanche chambers; Chip on board

Classification Codes:

942.1 (Electric & Electronic Instruments); 714.2 (Semiconductor Devices & Integrated Circuits)

942 (Electrical & Electronic Measuring Instruments); 715 (General Electronic Equipment); 714 (Electronic Components)

94 (INSTRUMENTS & MEASUREMENT); 71 (ELECTRONICS & COMMUNICATIONS)

8/8,AU/16 (Item 5 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

04850264

Title: Performance analysis and optimization of mixed asynchronous synchronous systems

Author: Teich, Jurgen; Thiele, Lothar; Sriram, Sundararajan; **Martin, Michael**

Publication Year: 1997

Descriptors: Digital **integrated circuits**; Optimization; Algorithms; Polynomials; Timing circuits; Graphic methods; Mathematical models; Computer aided analysis; **Integrated circuit** layout

Identifiers: Mixed asynchronous synchronous systems

Classification Codes:

714.2 (Semiconductor Devices & Integrated Circuits); 921.5 (Optimization Techniques); 921.1 (Algebra); 713.4 (Pulse Circuits); 723.5 (Computer Applications)

714 (Electronic Components); 921 (Applied Mathematics); 713 (Electronic Circuits); 723 (Computer Software)

71 (ELECTRONICS & COMMUNICATIONS); 92 (ENGINEERING MATHEMATICS); 72 (COMPUTERS & DATA PROCESSING)

8/8,AU/17 (Item 6 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

04712535

Title: Current-mode differential logic circuits for low power digital systems

Author: **Martin, Mark N.**; Pouliquen, Philippe O.; Andreou, Andreas G.; Fraeman, Martin E.

Conference Title: Proceedings of the 1996 IEEE 39th Midwest Symposium on Circuits & Systems. Part 1 (of 3)

Publication Year: 1996

Descriptors: Logic circuits; Transistors; Logic gates; Transconductance; Electric power supplies to apparatus; Capacitance; CMOS **integrated circuits**

Identifiers: Current mode differential logic; Voltage swings

Classification Codes:

721.2 (Logic Elements); 714.2 (Semiconductor Devices & Integrated Circuits); 701.1 (Electricity: Basic Concepts & Phenomena); 713.5 (Other Electronic Circuits)

721 (Computer Circuits & Logic Elements); 714 (Electronic Components);

701 (Electricity & Magnetism); 713 (Electronic Circuits)
72 (COMPUTERS & DATA PROCESSING); 71 (ELECTRONICS & COMMUNICATIONS); 70
(ELECTRICAL ENGINEERING)

8/8,AU/18 (Item 7 from file: 8)
DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

04241643

Title: D0 upgrade: central tracking readout electronics utilizing high speed optical links

Author: Baert, M.; Borcharding, F.; Johnson, M.; **Martin, M.**; Matulik, M.; Utes, M.; Amaral, J.; Costa, J.; Mendes, M.; Moreira, L.; Mendoza, D.

Conference Title: Proceedings of the 1994 Nuclear Science Symposium and Medical Imaging Conference. Part 2 (of 4)

Publication Year: 1994

Descriptors: Particle detectors; Readout systems; Optical links; Silicon sensors; Optical fibers; Application specific **integrated circuits**; Buffer storage; Systems analysis

Identifiers: Drift chamber; Silicon vertex detector; Scintillating fiber detector; Readout electronics; Charge digitizing chips

Classification Codes:

741.1.2 (Fiber Optics)

944.7 (Radiation Measuring Instruments); 717.1 (Optical Communication Systems); 714.2 (Semiconductor Devices & Integrated Circuits); 741.1 (Light/Optics); 722.1 (Data Storage, Equipment & Techniques)

944 (Moisture, Pressure & Temperature, & Radiation Measuring Instruments); 717 (Electro-Optical Communications); 714 (Electronic Components); 741 (Optics & Optical Devices); 722 (Computer Hardware)

94 (INSTRUMENTS & MEASUREMENT); 71 (ELECTRONICS & COMMUNICATIONS); 74 (OPTICAL TECHNOLOGY); 72 (COMPUTERS & DATA PROCESSING)

8/8,AU/19 (Item 8 from file: 8)
DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

04159653

Title: Performance analysis of mixed asynchronous synchronous systems

Author: Teich, J.; Sriram, S.; Thiele, L.; **Martin, M.**

Conference Title: Proceedings of the 1994 IEEE International Workshop VLSI Signal Processing

Publication Year: 1994

Descriptors: Digital **integrated circuits**; Timing circuits; Data communication systems; Graphic methods; Mathematical models; Computer architecture; Computational complexity; Constraint theory; Numerical analysis

Identifiers: Mixed asynchronous synchronous systems; Graph model; Clock skew

Classification Codes:

714.2 (Semiconductor Devices & Integrated Circuits); 721.3 (Computer Circuits); 722.3 (Data Communication, Equipment & Techniques); 921.4 (Combinatorial Mathematics, Includes Graph Theory, Set Theory); 921.6 (Numerical Methods); 721.1 (Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory)

714 (Electronic Components); 721 (Computer Circuits & Logic Elements); 722 (Computer Hardware); 921 (Applied Mathematics)

71 (ELECTRONICS & COMMUNICATIONS); 72 (COMPUTERS & DATA PROCESSING); 92 (ENGINEERING MATHEMATICS)

8/8,AU/20 (Item 9 from file: 8)
DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

03490839

Title: Integrated methodology for the design of ASICs and boards.
Author: Larreur, J. -C.; Martin, M. -J.
Publication Year: 1992
Descriptors: INTEGRATED CIRCUITS --*Computer Aided Design; COMPUTER SIMULATION; PRINTED CIRCUITS--Boards; DIGITAL COMMUNICATION SYSTEMS
Identifiers: APPLICATIONS SPECIFIC INTEGRATED CIRCUITS
Classification Codes:
713 (Electronic Circuits); 714 (Electronic Components); 723 (Computer Software); 716 (Radar, Radio & TV Electronic Equipment)
71 (ELECTRONICS & COMMUNICATIONS); 72 (COMPUTERS & DATA PROCESSING)

8/8,AU/21 (Item 10 from file: 8)
DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

03316884

Title: Status of the compact synchrotron radiation source COSY and first exposure experiments.
Author: Schmidt, M.; Oertel, D. W.; Oertel, H. K.; Huber, H. -L.; Weihreter, E.; Egan-Krieger, G. v.; Hartrott, M. v.; Lehr, H.; Martin, M.; Schulz, L.
Conference Title: Proceedings of the International Conference on Microlithography
Publication Year: 1991
Descriptors: SYNCHROTRON RADIATION--*Production; LITHOGRAPHY--X-Ray; SUPERCONDUCTING MAGNETS--Applications; INTEGRATED CIRCUITS, ULSI--Fabrication; ELECTRON BEAMS--Storage
Identifiers: COMPACT STORAGE RINGS (COSY); COSY COMPACT SYNCHROTRON RADIATION SOURCES
Classification Codes:
711 (Electromagnetic Waves); 741 (Optics & Optical Devices); 932 (High Energy, Nuclear & Plasma Physics); 745 (Printing & Reprography)
71 (ELECTRONICS & COMMUNICATIONS); 74 (OPTICAL TECHNOLOGY); 93 (ENGINEERING PHYSICS)

8/8,AU/22 (Item 11 from file: 8)
DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

02216896

Title: 100 MBS, 8 BIT DATA ACQUISITION AND ZERO SUPPRESSION SYSTEM FOR THE D0 DETECTOR.
Author: Martin, M. I.; Johnson, M. E.; Mayberry, M. J.; DeGroot, D. C.
Publication Year: 1987
Descriptors: PARTICLE DETECTORS--*Computer Interfaces; DATA PROCESSING--Data Acquisition; INTEGRATED CIRCUITS
Identifiers: DATA BUSES
Classification Codes:
944 (Moisture, Pressure & Temperature, & Radiation Measuring Instruments); 722 (Computer Hardware); 723 (Computer Software); 713 (Electronic Circuits)
94 (INSTRUMENTS & MEASUREMENT); 72 (COMPUTERS & DATA PROCESSING); 71 (ELECTRONICS & COMMUNICATIONS)

8/8,AU/23 (Item 12 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

01182389

Title: MULTI-MOS STRUCTURE SPEEDS LAYOUT OF VLSI CHIPS.

Author: Majos, Jacques; Martin, Marie Josee

Publication Year: 1981

Descriptors: SEMICONDUCTOR DEVICES, MOS--*Computer Aided Design;

INTEGRATED CIRCUITS --Very Large Scale Integration

Identifiers: MULTI-MOS STRUCTURES

Classification Codes:

714 (Electronic Components); 713 (Electronic Circuits)

71 (ELECTRONICS & COMMUNICATIONS)

8/8,AU/24 (Item 13 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

01080636

Title: INTEGRATED SPEECH SYNTHESIZER.

Author: Martin, Marie Josee ; Girard, Alain; Majos, Jacques

Publication Year: 1981

Descriptors: SPEECH--*Synthesis; INTEGRATED CIRCUITS --Large Scale Integration

Classification Codes:

751 (Acoustics); 752 (Sound Equipment & Systems); 713 (Electronic Circuits); 714 (Electronic Components)

75 (ACOUSTICAL TECHNOLOGY); 71 (ELECTRONICS & COMMUNICATIONS)

8/8,AU/25 (Item 14 from file: 8)

DIALOG(R)File 8:(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

00300937

Title: DESIGN OF AN AUDIO LOGIC TESTER.

Author: Majithia, J. C.; Bril, J.; Martin, M.

Publication Year: 1973

Descriptors: *LOGIC CIRCUITS--*Testing; ELECTRONIC EQUIPMENT TESTING

Classification Codes:

715 (General Electronic Equipment); 721 (Computer Circuits & Logic Elements)

71 (ELECTRONICS & COMMUNICATIONS); 72 (COMPUTERS & DATA PROCESSING)

?

Set	Items	Description
S1	35	AU=(DICK S? OR DICK, S? OR DICK S OR DICK, S OR DICK S. OR DICK, S. OR DICK SO OR DICK, SO OR DICK S.O. OR DICK, S.O. OR DICK STEFAN OR DICK, STEFAN)
S2	1699	AU=(MARTIN M? OR MARTIN, M? OR MARTIN M OR MARTIN, M OR MARTIN M. OR MARTIN, M. OR MARTIN MB OR MARTIN, MB OR MARTIN M.-B. OR MARTIN, M.B. OR MARTIN MICHELL OR MARTIN, MICHELLE)
S3	0	AU=(NOBILET R? OR NOBILET, R? OR NOBILET R OR NOBILET, R OR NOBILET R. OR NOBILET, R. OR NOBILET ROGER OR NOBILET, ROGER)
S4	3	AU=(BOUVIER F? OR BOUVIER, F? OR BOUVIER F OR BOUVIER, F OR BOUVIER F. OR BOUVIER, F. OR BOUVIER FREDERIC OR BOUVIER, FREDERIC)
S5	1737	S1:S4
S6	5	S5 AND (IC OR INTEGRATED()CIRCUIT? OR CIRCUIT()CHIP? OR SEMICONDUCTOR()CHIP? OR SILICON()CHIP? OR SMD OR SURFACE()MOUNT-?()DEVICE? OR ELECTRONIC()COMPONENT?)
S7	5	RD (unique items)
? show files		
File	9:Business & Industry(R)	Jul/1994-2003/Nov 26 (c) 2003 Resp. DB Svcs.
File	16:Gale Group PROMT(R)	1990-2003/Nov 26 (c) 2003 The Gale Group
File	47:Gale Group Magazine DB(TM)	1959-2003/Nov 26 (c) 2003 The Gale group
File	80:TGG Aerospace/Def.Mkts(R)	1986-2003/Nov 26 (c) 2003 The Gale Group
File	141:Readers Guide	1983-2003/Oct (c) 2003 The HW Wilson Co
File	148:Gale Group Trade & Industry DB	1976-2003/Nov 27 (c)2003 The Gale Group
File	160:Gale Group PROMT(R)	1972-1989 (c) 1999 The Gale Group
File	482:Newsweek	2000-2003/Nov 26 (c) 2003 Newsweek, Inc.
File	929:Albuquerque Newspapers	1995-2003/Nov 29 (c) 2003 Albuquerque Pub Co.

Set	Items	Description
S1	383165	IC OR INTEGRATED()CIRCUIT?
S2	353328	(CIRCUIT OR SILICON OR SEMICONDUCT?R OR SEMI()CONDUCT?R OR ELECTRONIC) () (CHIP OR CHIPS OR COMPONENT?)
S3	2033	SMD OR SURFACE()MOUNT?()DEVICE?
S4	302743	PACKAGE? OR PACK OR PACKS OR PLCC OR QFP
S5	911402	TRAY OR TRAYS OR TUBE OR TUBES
S6	506141	RECEPTACLE? OR CARRIER?
S7	673627	CONTAINER? OR BAG OR BAGS
S8	266795	ELECTROSTATIC? OR STATIC? OR ANTISTATIC? OR ESD OR ESC
S9	7529	DESSICAT? OR DESSICANT? OR DESICCAT? OR DESICCANT?
S10	228	DRIBOX OR DRI()BOX OR DRYBOX OR DRY()BOX OR DRIPACK OR DRI- ()PACK OR DRYPACK OR DRY()PACK OR DRIPAK OR DRI()PAK OR DRYPAK OR DRY()PAK
S11	21755	(MOISTURE OR HUMIDITY) () (PROOF OR ABSORB? OR ADSORB? OR AB- SORP? OR ADSORP?)
S12	34486	MONTMORILLONITE OR SILICA()GEL OR MOLECULAR()SIEVE?
S13	36437	CALCIUM() (OXIDE OR SULFATE) OR ACTIVATE?()ALUMIN? OR ALUMI- N?()SILICA?
S14	1683	(HUMIDITY OR MOISTURE) () (INDICAT?R? OR MONITOR?) OR HUMITE- CT? OR COBALT()CHLORIDE
S15	341863	POLY() (STYRENE OR PROPYLENE OR VINYL OR AMIDE)
S16	1533297	POLYSTYRENE OR POLYPROPYLENE OR POLYMER OR POLYVINYL OR PO- LYAMIDE
S17	732939	ELASTOMER OR PLASTIC? ?
S18	299737	IC=B65D?
S19	79286	S1:S3 AND S4:S7
S20	1695	S19 AND S8
S21	19	S20 AND S9:S13
S22	17	S19 AND S14
S23	2	S20 AND S14
S24	486	S20 AND S15:S17
S25	5	S24 AND (S21:S23)
S26	322	S20 AND S18
S27	10	S26 AND (S21:S23 OR S25)
S28	34	S21:S23 OR S25 OR S27
S29	33	S28 AND PY<2003
S30	33	IDPAT (sorted in duplicate/non-duplicate order)

? show files

File 347:JAPIO Oct 1976-2003/Jul(Updated 031105)

(c) 2003 JPO & JAPIO

File 350:Derwent WPIX 1963-2003/UD,UM &UP=200376

(c) 2003 Thomson Derwent

30/3,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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009247471 **Image available**
WPI Acc No: 1992-374888/ 199246
Related WPI Acc No: 1988-149170; 1991-348119
XRPX Acc No: N92-285764

Package for semiconductor surface mounted devices - seals devices
with desiccant into moisture proofing bag having moisture barrier
layer sandwiched between charge preventing layers

Patent Assignee: HITACHI LTD (HITA)
Inventor: KITAMURA W; MURAKAMI G; NISHI K
Number of Countries: 004 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 512579	A1	19921111	EP 92110466	A	19871124	199246 B
EP 512579	B1	19960124	EP 92110466	A	19871124	199609
DE 3751687	G	19960307	DE 3751687	A	19871124	199615
			EP 92110466	A	19871124	

Priority Applications (No Type Date): JP 87206290 A 19870821; JP 86278610 A 19861125

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
EP 512579	A1	E 23	B65D-081/26	Related to patent EP 458423
				Designated States (Regional): DE FR GB IT
EP 512579	B1	E 24	B65D-081/26	
				Designated States (Regional): DE FR GB IT
DE 3751687	G		B65D-081/26	Based on patent EP 512579
				Package for semiconductor surface mounted devices - ...

...seals devices with desiccant into moisture proofing bag having
moisture barrier layer sandwiched between charge preventing layers

...Abstract (Basic): The package comprises a moisture proofing bag in
which at least one surface mounted semiconductor device and a
desiccant are sealed. The bag is made of multilayered film
comprising a barrier layer for preventing intrusion of moisture,
sandwiched...

...charge preventing layer. The inner charge preventing layer may be of
polyethylene containing a kneaded antistatic agent...

...USE/ADVANTAGE - Esp. for transportation. Prevents condensation on
surface elements within package. Avoids long baking times to remove
moisture to avoid damage when heat is applied during...

...Abstract (Equivalent): A packaged device having at least one resin
moulded semiconductor device sealed in a bag member, the at least one
resin moulded semiconductor device being of a surface-mounting
semiconductor device to be surface-mounted on a printed circuit board,
characterised in that: the bag member is a moisture-proofing bag
member which is made of a laminate film, the laminate film comprising a
barrier layer...

...layer, and an outer charge preventing layer formed outside of the
barrier layer; and a desiccant is sealed in the moisture-proofing
bag member with the surface-mounting semiconductor device...

Title Terms: PACKAGE ;

International Patent Class (Main): B65D-081/26
International Patent Class (Additional): B65D-065/40 ...

30/3,K/2 (Item 2 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
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008844104 **Image available**
 WPI Acc No: 1991-348119/ 199148
 Related WPI Acc No: 1988-149170; 1992-374888
 XRAM Acc No: C91-150042
 XRPX Acc No: N91-266603

Package for semiconductor elements - has heat sealed bag of moisture impermeable laminate, containing a desiccant, to prevent moisture damage during mounting of component

Patent Assignee: HITACHI LTD (HITA); HITACHI MFG CO (HITA); KITAMURA W (KITA-I); MURAKAMI G (MURA-I); NISHI K (NISH-I)

Inventor: KITAMURA W; MURAKAMI G; NISHI K

Number of Countries: 007 Number of Patents: 018

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 458423	A	19911127	EP 91202052	A	19871124	199148 B
US 5274914	A	19940104	US 87124925	A	19871123	199402
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 92915233	A	19920720	
US 5295297	A	19940322	US 87124925	A	19871123	199411
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 92915496	A	19920720	
EP 458423	B1	19940921	EP 87310344	A	19871124	199436
			EP 91202052	A	19871124	
DE 3750589	G	19941027	DE 3750589	A	19871124	199442
			EP 91202052	A	19871124	
JP 7058230	A	19950303	JP 86278610	A	19861125	199518
			JP 93292983	A	19861125	
US 5607059	A	19970304	US 87124925	A	19871123	199715
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
US 5803246	A	19980908	US 87124925	A	19871123	199843
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
KR 9614474	B1	19961015	KR 8713166	A	19871123	199928
			KR 9212564	A	19920715	
KR 9615106	B1	19961028	KR 8713166	A	19871123	199929
KR 9616323	B1	19961209	KR 8713166	A	19871123	199931
			KR 9212565	A	19920715	
KR 9707120	B1	19970502	KR 8713166	A	19871123	199941
			KR 9212563	A	19920715	
US 5988368	A	19991123	US 87124925	A	19871123	200002
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	
US 6223893	B1	20010501	US 87124925	A	19871123	200126
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	

			US 99387049	A	19990831	
US 20010015327	A1	20010823	US 87124925	A	19871123	200151
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	
			US 99387049	A	19990831	
			US 2001843937	A	20010430	
US 6443298	B1	20020903	US 87124925	A	19871123	200260
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	
			US 99387049	A	19990831	
			US 2001843937	A	20010430	
US 20020174627	A1	20021128	US 87124925	A	19871123	200281
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	
			US 99387049	A	19990831	
			US 2001843937	A	20010430	
			US 2002207059	A	20020730	
US 20020179460	A1	20021205	US 87124925	A	19871123	200301
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	
			US 99387049	A	19990831	
			US 2001843937	A	20010430	
			US 2002207052	A	20020730	

Priority Applications (No Type Date): JP 87206290 A 19870821; JP 86278610 A 19861125; JP 93292983 A 19861125

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 458423	A		11		
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Designated States (Regional): DE FR GB IT

US 5274914	A	23	H05K-005/06	Div ex application US 87124925
				Cont of application US 89392029
				Div ex application US 91791539
				Cont of patent US 5095626

US 5295297	A	23	H01R-043/00	Div ex application US 87124925
				Cont of application US 89392029
				Div ex application US 91791539
				Cont of patent US 5095626

EP 458423	B1 E	29	B65D-081/26	Related to application EP 87310344
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Designated States (Regional): DE FR GB IT

DE 3750589	G		B65D-081/26	Based on patent EP 458423
JP 7058230	A	4	H01L-023/00	Div ex application JP 86278610
US 5607059	A	25	B65D-073/02	Div ex application US 87124925

				Cont of application US 89392029
				Cont of application US 91791539
				Cont of patent US 5095626

				Div ex patent US 5408934
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US 5803246	A		B65D-073/02	Div ex application US 87124925
				Cont of application US 89392029

			Cont of application US 91791539
			Cont of application US 94264745
			Cont of patent US 5095626
			Cont of patent US 5607059
KR 9614474	B1	H05K-003/30	Div ex application KR 8713166
KR 9615106	B1	B65D-081/20	
KR 9616323	B1	B65D-033/04	Div ex application KR 8713166
KR 9707120	B1	B65D-073/02	Div ex application KR 8713166
US 5988368	A	B65D-073/02	Div ex application US 87124925
			Cont of application US 89392029
			Cont of application US 91791539
			Cont of application US 94264745
			Cont of application US 96712559
			Cont of patent US 5095626
			Cont of patent US 5607059
			Cont of patent US 5803246
US 6223893	B1	B65D-073/02	Div ex application US 87124925
			Cont of application US 89392029
			Cont of application US 91791539
			Cont of application US 94264745
			Cont of application US 96712559
			Cont of application US 9894490
			Cont of patent US 5095626
			Cont of patent US 5607059
			Cont of patent US 5803246
			Cont of patent US 5988368
US 20010015327	A1	B65D-081/26	Div ex application US 87124925
			Cont of application US 89392029
			Cont of application US 91791539
			Cont of application US 94264745
			Cont of application US 96712559
			Cont of application US 9894490
			Cont of application US 99387049
			Cont of patent US 5095626
			Cont of patent US 5607059
			Cont of patent US 5803246
			Cont of patent US 5988368
			Cont of patent US 6223893
US 6443298	B1	B65D-073/02	Div ex application US 87124925
			Cont of application US 89392029
			Cont of application US 91791539
			Cont of application US 94264745
			Cont of application US 96712559
			Cont of application US 9894490
			Cont of application US 99387049
			Cont of patent US 5095626
			Cont of patent US 5607059
			Cont of patent US 5803246
			Cont of patent US 5988368
			Cont of patent US 6223893
US 20020174627	A1	B65B-029/00	Div ex application US 87124925
			Cont of application US 89392029
			Cont of application US 91791539
			Cont of application US 94264745
			Cont of application US 96712559
			Cont of application US 9894490
			Cont of application US 99387049
			Div ex application US 2001843937
			Cont of patent US 5095626
			Cont of patent US 5607059
			Cont of patent US 5803246

US 20020179460 A1

B65D-085/86

Cont of patent US 5988368
Cont of patent US 6223893
Div ex patent US 6443298
Div ex application US 87124925
Cont of application US 89392029
Cont of application US 91791539
Cont of application US 94264745
Cont of application US 96712559
Cont of application US 9894490
Cont of application US 99387049
Div ex application US 2001843937
Cont of patent US 5095626
Cont of patent US 5607059
Cont of patent US 5803246
Cont of patent US 5988368
Cont of patent US 6223893
Div ex patent US 6443298

Package for semiconductor elements...

...has heat sealed bag of moisture impermeable laminate, containing a desiccant, to prevent moisture damage during mounting of component

...Abstract (Basic): Packaging of semiconductor elements (12) for moisture exclusion includes tube-like magazines (13) in an inner box (14). The box (14) is enclosed in a bag (17) formed from a heat-sealable film laminate (11); a desiccant may be enclosed in the bag (17). The laminate may contain layers of materials for heat-sealing, e.g. polyethylene contg. an anti-static agent, transparent polyester, a carbon conductive layer and a moisture proofing layer such as polyvinylidene...

...A humidity indicator (15) is provided inside the bag (17), either printed in a humidity sensitive ink on the inner surface or by adhering...

...aluminium foil is included as a moisture barrier, a transparent "window" is provided in the bag to which the humidity indicator is directly bonded. (11pp Dwg.No.6/25)

...Abstract (Equivalent): packaging at least one surface-mounting semiconductor device, comprising the steps of: (a) moulding a semiconductor chip (42) and inner portions of leads (46) electrically connected to said chip by a resin...

...device; (c) after said baking is completed, sealing said surface-mounting semiconductor device in a moisture-proof bag member of multi-layered film, prior to intrusion of moisture into said surface-mounting semiconductor...

...Abstract (Equivalent): A packaged device comprising: a moisture-proofing bag member which is made of a laminate; and at least one surface-mount resin moulded semiconductor device and a desiccant sealed in the moisture-proofing bag member, such that the desiccant absorbs moisture within the moisture-proofing bag member when the resin moulded semiconductor device is sealed in the bag member, the at least one surface-mount resin moulded semiconductor device being at least one...

...forming the resin moulding to performing surface mounting; where the laminate forming the moisture-proofing bag member is made of (a) a barrier layer for sufficiently preventing intrusion of moisture into the moisture-proofing bag member when the at least one surface-mount resin moulded semiconductor device is sealed in...

...is surface mounted on a substrate by taking it out of a sealing multilayer film **moisture0 - proof bag** holding the device and a **desiccant** and soldering its leads to the substrate during which heat is applied to the device...

...Mounting is performed sufficiently rapidly so that cracking of the device after mounting due to **moisture absorbed** after removing from the **bag** .

...

...The **bag** pref. has a moisture barrier layer of polyvinylidene chloride and two charge preventing layers. Soldering...

...phase reflow, and the device is mounted within a few hours of removal from the **bag** .

...

...USE/ADVANTAGE - Eg for mounting small outline or quad flat **packages** or **plastic** leaded chip **carriers** to a PCB. Prevents interface peeling and cracking, and permits highly reliable high-density packaging...

...A surface-mount resin-moulded semiconductor device is **packaged** by a method in which the device is baked and sealed air-tight in a moisture-proofing **bag** of a multi-layered film, contg. **desiccant** , before moisture intrusion. The **bag** has an innermost layer of polyethylene film and includes a vinylidene film. The device can be stored in a **tray** , before sealing, the **tray** being put in an interior box...

...ADVANTAGE - Prevents interface peeling and cracking of surface mount **package** type **package** . 2,6,12/25

Title Terms: **PACKAGE** ;

...International Patent Class (Main): **B65D-033/04** ...

... **B65D-073/02** ...

... **B65D-081/20** ...

... **B65D-081/26**

...International Patent Class (Additional): **B65D-085/00** ...

... **B65D-085/30** ...

... **B65D-085/86**

30/3,K/3 (Item 3 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
 (c) 2003 Thomson Derwent. All rts. reserv.

007515237 **Image available**
 WPI Acc No: 1988-149170/ 198822
 Related WPI Acc No: 1991-348119; 1992-374888
 XRPX Acc No: N88-113923

Moisture proof package for semiconductor elements - has air-sealed
 container containing drying agent with humidity indicator in contain
 and visible from outside

Patent Assignee: HITACHI LTD (HITA); HITACHI MFG CO (HITA); KITAMURA W
 (KITA-I); MURAKAMI G (MURA-I); NISHI K (NISH-I)

Inventor: KITAMURA W; MURAKAMI G; NISHI K

Number of Countries: 007 Number of Patents: 024

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 269410	A	19880601	EP 87310344	A	19871124	198822 B
JP 63138986	A	19880610	JP 86278610	A	19861125	198829
JP 1058670	A	19890306	JP 87206290	A	19870821	198915
US 4971196	A	19901120	US 89393120	A	19890810	199049
US 5095626	A	19920317	US 89392029	A	19890810	199214
EP 269410	B	19920422	EP 87310344	A	19871124	199217
DE 3778499	G	19920527	DE 3778499	A	19871124	199223
			EP 87310344	A	19871124	
US 5274914	A	19940104	US 87124925	A	19871123	199402
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 92915233	A	19920720	
US 5295297	A	19940322	US 87124925	A	19871123	199411
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 92915496	A	19920720	
JP 7267281	A	19951017	JP 87206290	A	19870821	199550
			JP 94188088	A	19870821	
US 5295297	B1	19961126	US 87124925	A	19871123	199702
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			US 91791539	A	19911114	
			US 92915496	A	19920720	
US 5607059	A	19970304	US 87124925	A	19871123	199715
			US 89392029	A	19890810	
			US 91791539	A	19911114	
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US 5803246	A	19980908	US 87124925	A	19871123	199843
			US 89392029	A	19890810	
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			US 96712559	A	19960913	
KR 9614474	B1	19961015	KR 8713166	A	19871123	199928
			KR 9212564	A	19920715	
KR 9615106	B1	19961028	KR 8713166	A	19871123	199929
KR 9616323	B1	19961209	KR 8713166	A	19871123	199931
			KR 9212565	A	19920715	
KR 9707120	B1	19970502	KR 8713166	A	19871123	199941
			KR 9212563	A	19920715	
US 5988368	A	19991123	US 87124925	A	19871123	200002
			US 89392029	A	19890810	
			US 91791539	A	19911114	
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US 6223893	B1	20010501	US 87124925	A	19871123	200126
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			US 9894490	A	19980610	
			US 99387049	A	19990831	
US 20010015327	A1	20010823	US 87124925	A	19871123	200151
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			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	
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			US 2001843937	A	20010430	
US 6443298	B1	20020903	US 87124925	A	19871123	200260
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US 20020179460	A1	20021205	US 87124925	A	19871123	200301
			US 89392029	A	19890810	
			US 91791539	A	19911114	
			US 94264745	A	19940623	
			US 96712559	A	19960913	
			US 9894490	A	19980610	
			US 99387049	A	19990831	
			US 2001843937	A	20010430	
			US 2002207052	A	20020730	
US 20030057113	A1	20030327	US 87124925	A	19871123	200325
			US 89392029	A	19890810	
			US 91791539	A	19911114	
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			US 96712559	A	19960913	
			US 9894490	A	19980610	
			US 99387049	A	19990831	
			US 2001843937	A	20010430	
			US 2002207086	A	20020730	

Priority Applications (No Type Date): JP 87206290 A 19870821; JP 86278610 A 19861125; JP 94188088 A 19870821

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 269410	A	E	21		
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Designated States (Regional): DE FR GB IT

US 4971196	A		23		
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US 5095626	A		22		
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EP 269410	B	E	26		
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Designated States (Regional): DE FR GB IT

DE 3778499	G	B65D-081/26	Based on patent EP 269410
US 5274914	A	23 H05K-005/06	Div ex application US 87124925
			Cont of application US 89392029
			Div ex application US 91791539
			Cont of patent US 5095626
US 5295297	A	23 H01R-043/00	Div ex application US 87124925
			Cont of application US 89392029
			Div ex application US 91791539
			Cont of patent US 5095626
JP 7267281	A	4 B65D-081/26	Div ex application JP 87206290
US 5295297	B1	2 H01R-043/00	Div ex application US 87124925
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			Div ex application US 91791539
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US 5607059	A	25 B65D-073/02	Div ex application US 87124925
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			Cont of application US 91791539
			Cont of patent US 5095626
			Div ex patent US 5408934
US 5803246	A	B65D-073/02	Div ex application US 87124925
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			Cont of application US 91791539
			Cont of application US 94264745
			Cont of patent US 5095626
			Cont of patent US 5607059
KR 9614474	B1	H05K-003/30	Div ex application KR 8713166
KR 9615106	B1	B65D-081/20	
KR 9616323	B1	B65D-033/04	Div ex application KR 8713166
KR 9707120	B1	B65D-073/02	Div ex application KR 8713166
US 5988368	A	B65D-073/02	Div ex application US 87124925
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			Cont of patent US 5607059
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US 6443298	B1	B65D-073/02	Div ex application US 87124925
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US 20020174627 A1	B65B-029/00	Div ex application US 87124925
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		Cont of patent US 5607059
		Cont of patent US 5803246
		Cont of patent US 5988368
		Cont of patent US 6223893
		Div ex patent US 6443298
US 20020179460 A1	B65D-085/86	Div ex application US 87124925
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		Cont of application US 91791539
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		Div ex application US 2001843937
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US 20030057113 A1	B65D-081/26	Div ex application US 87124925
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		Cont of application US 96712559
		Cont of application US 9894490
		Cont of application US 99387049
		Div ex application US 2001843937
		Cont of patent US 5095626
		Cont of patent US 5607059
		Cont of patent US 5803246
		Cont of patent US 5988368
		Cont of patent US 6223893
		Div ex patent US 6443298

Moisture proof package for semiconductor elements...

...has air-sealed container containing drying agent with humidity indicator in contain and visible from outside

...Abstract (Basic): The package comprises a container (17) enclosing semiconductor elements (12) which are located within carriers (13) and a number of such carriers are enclosed within the container (17), e.g. a bag. The bag may be made of moisture-proof film (11)

which is air-sealed. A drying agent, e.g. a dessicant, may be provided within the **bag** or within the **carriers** .

...

- ...A **humidity indicator** (15) is provided within the **container** so as to be visible from outside to provide a visual indication if there is undesirable condensation within the **container** . The film (11) may be multi-layered with one layer being a metal sheet, sandwiched
- ...Abstract (Equivalent): A **package** comprising: a semiconductor element (3, 12) having at least one **semiconductor chip** on which at least one electronic device is formed which semiconductor element (3, 12) has ...
- ...member (41) covering all the main plane of the at least one chip; and a **bag** member (8, 17) which surrounds the element (3, 12) and seals the element in an...
- ...characterised in that: the element (3, 12) is a surface mounting semiconductor element; and the **bag** member (8, 17) comprises a multi-layered film containing at least one metal sheet (35) whereby moisture is prevented from reaching the element in the **package** so that cracking
- ...Abstract (Equivalent): In the present invention. A surface mount **package** stored in a magazine is put into an interior box, the interior box is then placed into a transparent resin **bag** . A polyester used as a base has moisture permeability of up to 2.0/m...
- ...up to 10 (powered +11) Ohms on the inner side. The open portion of the **bag** is heat sealed after removing the air. A desiccant such as silica gel is put...
- ...The **package** is stored in the interior box and the moisture-proofing **bag** outside the box and sealed completely by deaeration and heat sealing and is free from the influences of external moisture. Therefore, the interface peeling and cracking of the **package** do not occur even after solder reflow without the need of the troublesome baking operation...
- ...2.0 g/m squared 24 hours is used as the base of the resin **bag** , moisture-resistance is high and heat seal is possible, so that the effect of checking intrusion of the external air is high. The surface intrinsic resistance of the **bag** is up to 10 (powered +11) ohms on its inner surface and up to 10...
- ...method of packaging resin moulded semiconductor device involves preserving resin moulded devices in moisture-proofing **bags** . The devices are air-tightly sealed in the moisture-proofing **bags** so as to cut off the resin moulded devices from outside. The resin moulded devices are taken out from the moisture-proofing **bags** . The resin moulded devices are placed on a wiring substrate and the leads of the ...
- ...resin moulded devices receive thermal impact. A hygroscopic state is confirmed inside the moisture-proofing **bags** . A desiccant is sealed in the moisture-proofing **bags** . The resin moulded devices are preserved in the moisture-proofing **bags** , after resin moulding the devices, such that the resin moulded devices do not absorb moisture...
- ...A **packaged** device comprising: a moisture-proofing **bag** member which is made of a laminate; and at least one surface-mount resin moulded

semiconductor device and a desiccant sealed in the moisture-proofing **bag** member, such that the desiccant absorbs moisture within the moisture-proofing **bag** member when the resin moulded semiconductor device is sealed in the **bag** member, the at least one surface-mount resin moulded semiconductor device being at least one...

...forming the resin moulding to performing surface mounting; where the laminate forming the moisture-proofing **bag** member is made of (a) a barrier layer for sufficiently preventing intrusion of moisture into the moisture-proofing **bag** member when the at least one surface-mount resin moulded semiconductor device is sealed in...

...Title Terms: **PACKAGE** ;

30/3,K/4 (Item 4 from file: 347)
DIALOG(R)File 347:JAPIO
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02761070 **Image available**
MOISTUREPROOF PACKAGING **BAG** OF ELECTRONIC PART

PUB. NO.: 01-058670 [JP 1058670 A]
PUBLISHED: March 06, 1989 (19890306)
INVENTOR(s): KITAMURA WAHEI
MURAKAMI HAJIME
NISHI KUNIIHIKO
APPLICANT(s): HITACHI LTD [000510] (A Japanese Company or Corporation), JP
(Japan)
APPL. NO.: 62-206290 [JP 87206290]
FILED: August 21, 1987 (19870821)
JOURNAL: Section: M, Section No. 836, Vol. 13, No. 252, Pg. 155, June
12, 1989 (19890612)

MOISTUREPROOF PACKAGING **BAG** OF ELECTRONIC PART

...PUBLISHED: 19890306)
...JAPIO CLASS: Containers); 14.2 (ORGANIC CHEMISTRY...

... Electronic Components)

ABSTRACT

PURPOSE: To easily confirm the hygroscopic state of the interior of a transparent moistureproof packaging **bag** from outside, by providing a **humidity indicator** detecting the internal humidity of the transparent moistureproof packaging **bag** for packaging an electronic part in a moistureproof state at a position visible from outside...

...CONSTITUTION: A receiving **container** 3 having plurality of electronic parts 2 such as surface mounting semiconductor devices received therein is received in an inner box 4 which is, in turn, inserted in a **bag** like moistureproof member 1 and both end parts 1A, 1B of said member 1 are sealed to perform moistureproof packaging. In performing the moistureproof packaging, a **humidity indicator** 5 detecting the humidity in a moistureproof packaging **bag** 100 is provided on the inner side surface of the transparent **bag** like moistureproof member 1 at a position visible from the outside. For example, a humidity detecting label 5 is bonded to the inside of the transparent **bag** like moistureproof member 1 by an adhesive member 6 having vent holes 6A so as...

...prepared by impregnating paper made of pulp with a substance discoloring by humidity such as **cobalt chloride** is used.

30/3,K/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

015390437 **Image available**

WPI Acc No: 2003-451383/ 200343

XRAM Acc No: C03-120186

XPX Acc No: N03-360041

Semiconductor moisture - proof packaging bag for LSI, consists of laminated film of base film, heat sealing layer and barrier layer which is made of aluminum foil having predetermined elongation

Patent Assignee: ASAH KASEI POLYFLEX KK (ASAH); TOSHIBA KK (TOKE)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 2002274594	A	20020925	JP 200175987	A	20010316	200343 B

Priority Applications (No Type Date): JP 200175987 A 20010316

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2002274594	A		5	B65D-085/86	

Semiconductor moisture - proof packaging bag for LSI, consists of laminated film of base film, heat sealing layer and barrier layer...

Abstract (Basic):

... The packaging bag consists of laminated film of a base film (10), comprising nylon film of thickness 15...

... For packaging semiconductor substrates mounting electronic components , integrated circuits , LSI...

...The production of crack in the semiconductor substrate due to water vapor, oxygen, static , etc., is prevented. Since the packaging bag consists of aluminum foil, the weight of packing material is reduced. The curtailment of waste...

...The figure shows a sectional view of film composition of semiconductor moisture - proof packaging bag . (Drawing includes non-English language text...

...Title Terms: PACKAGE ;

International Patent Class (Main): B65D-085/86

...International Patent Class (Additional): B65D-030/02 ...

... B65D-065/40

30/3,K/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

014972089

WPI Acc No: 2003-032603/ 200303

XRAM Acc No: C03-007792

XRPX Acc No: N03-025735

Packaging material for semiconductor electronic components , has protective thin film and poly thiophene group electroconductive polymer formed on laminate containing electroconductive and moisture - proof base materials

Patent Assignee: KONDO A (KOND-I)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 2002210861	A	20020731	JP 200113228	A	20010122	200303 B

Priority Applications (No Type Date): JP 200113228 A 20010122

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 2002210861	A	5	B32B-009/00	

Packaging material for semiconductor electronic components , has protective thin film and poly thiophene group electroconductive polymer formed on laminate containing electroconductive and moisture - proof base materials

Abstract (Basic):

... A protective thin film and poly thiophene group electroconductive **polymer** are formed on a laminate containing an electroconductive base material and **moisture - proof** base material. The electrical resistance of the electroconductive base material is 102-106 OMEGA/SQ and the water-vapor permeability of the **moisture - proof** base material is less than 0.25 g/m2 for every 24 hours.

... For packaging semiconductor **electronic components** .

...

...Enables to perform bar-code management of **packaged semiconductor electronic component** , easily. Enables to prevent **static** damage and foreign material adhesion to the semiconductor **electronic components**

Title Terms: **PACKAGE** ;

...International Patent Class (Additional): B65D-085/86

30/3,K/9 (Item 9 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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014605152 **Image available**
WPI Acc No: 2002-425856/ 200245
XRAM Acc No: C02-120617
XRPX Acc No: N02-334868

Irreversible humidity indicator card for electronic component storage container , has intermediate carrier with deliquescent salt provided holes which are covered by darkened blotting paper

Patent Assignee: SUED-CHEMIE INC (SUDC); SUD-CHEMIE INC (SUDC)

Inventor: DICK S; MARTIN M B; ROBERTSON A J

Number of Countries: 020 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200223183	A2	20020321	WO 2001US28002	A	20010907	200245 B
EP 1305621	A2	20030502	EP 2001972954	A	20010907	200331
			WO 2001US28002	A	20010907	

Priority Applications (No Type Date): US 2000660560 A 20000912

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200223183 A2 E 28 G01N-031/22

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
MC NL PT SE TR

EP 1305621 A2 E G01N-031/22 Based on patent WO 200223183

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI
LU MC NL PT SE TR

Irreversible humidity indicator card for electronic component storage container , has intermediate carrier with deliquescent salt provided holes which are covered by darkened blotting paper

Abstract (Basic):

... An intermediate **carrier** (20) has several holes (26) provided with a deliquescent salt (40). A water vapor-permeable...

...blotting paper (50) are secured to the front and rear sides (22,24) of the **carrier** , so that blotting paper covers the holes of the **carrier**

... An INDEPENDENT CLAIM is also included for the production of an irreversible **humidity** indicator card...

...For indicating the humidity level of an **electronic** component shipping and storage **container** .

...indicator card does not produce paper-fibers or lint during use, preventing damage to the **electronic** components provided inside the storage **containers** .

...The figure shows a side view of the irreversible **humidity** indicator card...

...Intermediate **carrier** (20

...Title Terms: **CONTAINER** ;

30/3,K/12 (Item 12 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014365532 **Image available**

WPI Acc No: 2002-186233/ 200224

Method of packing humidity indicator , desiccant and semiconductor
chip in shield bag without omitting humidity indicator or
desiccant

Patent Assignee: CHOI M S (CHOI-I)

Inventor: CHOI M S

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
KR 2001094021	A	20011031	KR 200017379	A	20000403	200224 B

Priority Applications (No Type Date): KR 200017379 A 20000403

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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KR 2001094021	A		1	B65B-007/00	
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Method of packing humidity indicator , desiccant and semiconductor
chip in shield bag without omitting humidity indicator or
desiccant

Abstract (Basic):

... A packing method of a shield bag including a **humidity indicator** , a desiccant and **semiconductor chip package** is provided to prevent a **humidity indicator** or a desiccant in the shield **bag** from being omitted by detecting the absence conveniently in packing **semiconductor chips** or **electronic components** .

... **Semiconductor chips** or **electronic components** are packed with a first **package** such as a tube , a tray or **carrier tape**. A **humidity indicator** (10) is attached to a packing **bag** of a desiccant(20) to prevent the **humidity indicator** from being omitted. The desiccant and the **humidity indicator** are put in a second **package** with the packed **electronic components** , and the second **package** is sealed. The **humidity indicator** is put in a shield **bag** with being stuck to the desiccant packing **bag** . The absence of the **humidity indicator** or the desiccant is checked with detecting the weight of the sealed shield **bag** or with sticking an electromagnetic sensing label or an electromagnetic sensing tag to the **humidity indicator** or the desiccant

...Title Terms: **PACK** ;

30/3,K/16 (Item 16 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

013395467 **Image available**

WPI Acc No: 2000-567405/ 200053

XRAM Acc No: C00-169246

XPX Acc No: N00-419181

High moisture proof laminate for packaging of electronic components , has three layered composite film consisting of reinforcement resin layer interposed between two metallic foils

Patent Assignee: DAINIPPON PRINTING CO LTD (NIPQ)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 2000167968	A	20000620	JP 98343990	A	19981203	200053 B

Priority Applications (No Type Date): JP 98343990 A 19981203

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 2000167968	A	7	B32B-007/00	°

High moisture proof laminate for packaging of electronic components , has three layered composite film consisting of reinforcement resin layer interposed between two metallic foils

Abstract (Basic):

... The moisture proof laminate consists of a composite film of triple layer provided to form a high water...
... For packaging of electronic components .
...

...structure of the water vapor barrier layer. Preservation of content is excellent due to the moisture proof property of the laminate.
Preservation of electronic component is excellent due to anti-static property of composite film

...Title Terms: PACKAGE ;

...International Patent Class (Additional): B65D-065/40 ...

... B65D-085/38

30/3,K/18 (Item 18 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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013363237

WPI Acc No: 2000-535176/ 200049

XRFX Acc No: N00-395969

Humidity indicator label for deoxidation agent packaging bag , has
predetermined width and tensile strength

Patent Assignee: MITSUBISHI GAS CHEM CO INC (MITN)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 2000168846	A	20000620	JP 98341922	A	19981201	200049 B

Priority Applications (No Type Date): JP 98341922 A 19981201

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2000168846	A		5	B65D-081/24	

Humidity indicator label for deoxidation agent packaging bag , has
predetermined width and tensile strength

Abstract (Basic):

... Humidity indicator label is struck on surface of deoxidation
packaging bag . The tensile strength of a label is 1kgf or more and
width is 15 mm.

... For deoxidation agent packaging bag used to preserve metal
component, **electronic** component , electric component, precision
component, magnetic and optical component, jewelry, arms, aircraft,
motor vehicle, glass, rubber...

...Title Terms: **PACKAGE** ;

30/3,K/19 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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013286274 **Image available**

WPI Acc No: 2000-458209/ 200040

XRAM Acc No: C00-139005

XPX Acc No: N00-342200

**Desiccant bag with humidity indicator for electronic component
and semiconductor has humidity indicator adhered to bag surface by
thermo-bonding**

Patent Assignee: DAIYA KASEI YG (DAIY-N)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 2000167335	A	20000620	JP 98366081	A	19981207	200040 B

Priority Applications (No Type Date): JP 98366081 A 19981207

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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JP 2000167335	A		4	B01D-053/26	
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**Desiccant bag with humidity indicator for electronic component
and semiconductor has humidity indicator adhered to bag surface by
thermo-bonding**

Abstract (Basic):

... A **humidity indicator** (5) is adhered to required place of a
bag (1) which is divided into pockets by thermo-compression bonding.
The **bag** is made of air permeable material such as non-woven fabric
and seals desiccant (3...
... quicker manufacturing process in shorter duration. Reduces cost
as, the indication piece is adhered to **bag** by thermo-compression
bonding...

...The figure shows the top view with partial sectional view of **bag** .

...

... **Bag** (1...

... **Humidity indicator** (5

...Title Terms: **BAG** ;

30/3,K/20 (Item 20 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

012383192 **Image available**
WPI Acc No: 1999-189299/ 199916
XRPX Acc No: N99-138461

Packaging container for integrated circuits (ICs)

Patent Assignee: HUMIDIAL CORP (HUMI-N)

Inventor: BELTRAN M; MARTIN M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5875892	A	19990302	US 97781479	A	19970110	199916 B

Priority Applications (No Type Date): US 97781479 A 19970110

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5875892	A	12	B65D-085/00		

Packaging container for integrated circuits (ICs)

Abstract (Basic):

... A packaging **bag** is formed by sealing the edges of a water and water vapor proof packaging material. A **humidity indicator** system (12) contains a **humidity** indicator (20) and a humidity comparator (22) which are sealed to an inner sealing ring and an outer sealing cap, which are sealed to an opening (18) in the **bag**.

... Allows the moisture level within the packaging **container** to be easily determined without opening the **container**, and the ICs can be removed and treated if the moisture level is too high...

...The diagram shows an exploded view of the packaging **container** with the **humidity indicator** system...

... **Humidity** indicator system (12...

... **Bag** opening (18...

... **Humidity** indicator (20

Title Terms: **PACKAGE** ;

30/3,K/21 (Item 21 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

011384539 **Image available**
WPI Acc No: 1997-362446/ 199733
XRPX Acc No: N97-301376

Packaging moisture sensitive semiconductor components - using rectangular shipping container of electrostatic discharge protected material which is sealed with a lid containing humidity indicator and desiccant material

Patent Assignee: MOTOROLA INC (MOTI)

Inventor: TRUESDALE R

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5644899	A	19970708	US 95578134	A	19951226	199733 B

Priority Applications (No Type Date): US 95578134 A 19951226

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5644899	A		6		

Packaging moisture sensitive semiconductor components - ...

...using rectangular shipping container of electrostatic discharge protected material which is sealed with a lid containing humidity indicator and desiccant material

...Abstract (Basic): The method for packaging moisture sensitive semiconductor components involves providing several semiconductor components (12). Each component is encapsulated in a plastic package body capable of absorbing moisture. They are strung together with a flexible tape to allow fan-folding. A clean-room-compatible rectangular shipping container (42) is provided. The rectangular shipping container is composed of a polymer-based, volumetric electrostatic-discharge-protected material. The semiconductor components are placed into the rectangular shipping container. The rectangular shipping container is sealed with a reclosable lid (44) to provide an airtight environment for the components...

...The reclosable lid is also composed of an electrostatic-discharge-protected material. The rectangular shipping container is stacked into an outer box for transporting the components to a user. The rectangular shipping container and the reclosable lid are reusable for shipping other components. A desiccant material (52) is placed inside the rectangular shipping container to absorb moisture inside the airtight environment. A humidity sensor indicator (48) is placed inside the rectangular shipping container to monitor humidity inside the airtight environment...

Title Terms: PACKAGE ;

30/3,K/22 (Item 22 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

010638667 **Image available**

WPI Acc No: 1996-135620/ 199614

Related WPI Acc No: 1990-064593; 1996-135619; 1996-146699; 2000-217537;
2000-217538; 2001-075315

XPX Acc No: N96-114149

**Storage package mfg. method for surface mounting package e.g. single
outline package , quad flat package , plastic leadless chip carrier -
by performing dense vacuum sealing to damp-proof laminated bag with
moisture absorbing silica gel agent**

Patent Assignee: HITACHI LTD (HITA)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 8026379	A	19960130	JP 8841992	A	19880226	199614 B
			JP 9535804	A	19880226	

Priority Applications (No Type Date): JP 8841992 A 19880226; JP 9535804 A
19880226

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 8026379	A	13	B65D-085/86	Div ex application	JP 8841992

**Storage package mfg. method for surface mounting package e.g. single
outline package , quad flat package , plastic leadless chip carrier -
...**

**...by performing dense vacuum sealing to damp-proof laminated bag with
moisture absorbing silica gel agent**

**...Abstract (Basic): The method involves sealing a semiconductor chip
and inner lead with a resin to form a surface mounted semiconductor
package which is contained in a damp-proof laminated bag (8) with a
humidity indicator .
...**

**...A moisture absorption agent is applied into the laminated bag and
after vacuuming a dense sealing process is performed. Thus, no moisture
infiltrates the package before being mounted in a substrate...**

**...ADVANTAGE - Prevents crack or peeling in semiconductor package
boundary surface. Enables to mount semiconductor package at optimum
condition by displaying moisture absorption state. Prevents influence
of external humidity through moisture**

...Title Terms: PACKAGE ;

30/3,K/23 (Item 23 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

009914547 **Image available**
WPI Acc No: 1994-182257/ 199422
XRPX Acc No: N94-143959

Integrated circuit shipping package - comprises dry- packs with
compartmentalised humidity sensing indicators provided at locations along
carrier tape

Patent Assignee: MOTOROLA INC (MOTI)

Inventor: GERKE R D; STOVER M M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5318181	A	19940607	US 92860848	A	19920331	199422 B

Priority Applications (No Type Date): US 92860848 A 19920331

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5318181	A	7	B65D-073/02	

Integrated circuit shipping package - ...

...comprises dry- packs with compartmentalised humidity sensing indicators
provided at locations along carrier tape

...Abstract (Basic): Plastics encapsulate ICs (28) are susceptible to
moisture due to the permeability of moulding components. IC (28) may
be baked until dry before being shipped to the customer to reduce the
risk of cracking. To retain this dry condition, ICs (28) are packaged
and shipped in dry- packs . Compartmentalised humidity sensing
indicators (14,16 and 18) are provided for tape and reel IC shipping
medium (20) to monitor moisture levels...

...The indicators (14,16 and 18) are provided at multiple locations along
the carrier tape (22) as a continuous strip with repeating series of
humidity indicators . Distinction can be made between the humidity
conditions along the length of the carrier tape, which allows
identification of problem areas and affected devices...

...reel need rebaking, which offers cycle time and cost advantages over
rebaking entire contents of carrier tape...

...Title Terms: PACKAGE ;

30/3,K/24 (Item 24 from file: 350)
DIALOG(R)File 350:Derwent WPIX.
(c) 2003 Thomson Derwent. All rts. reserv.

009799987 **Image available**

WPI Acc No: 1994-079840/ 199410

XRAM Acc No: C94-036443

XRPX Acc No: N94-062571

Sheet for packaging electronic components - having air-permeable sheet on one surface and non-air-permeable sheet having conductive and insulative layers on other surface

Patent Assignee: ITO S (ITOS-I)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 6032385	A	19940208	JP 92163558	A	19920529	199410 B

Priority Applications (No Type Date): JP 92163558 A 19920529

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 6032385	A	6	B65D-085/38	

Sheet for packaging electronic components -

...Abstract (Basic): Sheet (2) for packaging **electronic components** has an air permeable sheet (6) on its single surface and a non-air permeable...

...on its other surface. Packaging parts (3) are formed between both the sheets (6,7). **Silica gel** (15) and conductive foaming beads (16) are sealed in each packaging part...

...Packaging of **electronic components** comprises: (a) packaging **electronic components** (1) in the sheet (2); (B) covering the sheet with a non-air permeable bag forming an **electrostatic** shielding layer and an electromagnetic shielding layer...

...USE/ADVANTAGE - The sheet is used in packaging **electronic components** , including ICs, LSIs, VSLIs, or liq. crystal components. The **electronic components** are kept in good dried condition. **Static** electricity is released outside. External electromagnetic waves are interrupted...

...Title Terms: **PACKAGE** ;

International Patent Class (Main): B65D-085/38

30/3,K/25 (Item 25 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

009532575 **Image available**

WPI Acc No: 1993-226116/ 199328

XRAM Acc No: C93-100713

XRPX Acc No: N93-173564

Flexible humidity indicator for wall opening of electronic components **packaging** - has smaller sensing layer between transparent outer and vapour-permeable inner layers

Patent Assignee: WILLIAMS C A (WILL-I)

Inventor: WILLIAMS C A; WILLIAMS J M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5224373	A	19930706	US 91699312	A	19910509	199328 B

Priority Applications (No Type Date): US 91699312 A 19910509

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5224373	A		G01W-001/00	

Flexible humidity indicator for wall opening of electronic components **packaging**...

...Abstract (Basic): beyond the second to form a mounting edge (15). The sensor is mounted in a container (C) with the third layer directed inwards. The second layer is pref. of blotting paper treated with **cobalt chloride** soln., or has areas responding to different humidity and carrying indicia. The third layer is pref. of flash spun film fibril high-density polyethylene. The container is pref. formed of sheet flash spun film fibril high-density polyethylene carrying a layer ...

...USE/ADVANTAGE - Partic. for packaging moisture-sensitive **electronic components** , provides direct indication and protects components against contamination...

...Title Terms: **PACKAGE** ;

30/3,K/26 (Item 26 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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009530490

WPI Acc No: 1993-224031/ 199328

XRAM Acc No: C93-099527

XRFX Acc No: N93-172126

Bag for preventing electrostatic breaking of electronic parts - has
water vapour barrier layer laminated with hot meltable inner layer with
antistatic inner side through adhesive- and weak bonding resin layers

Patent Assignee: TOYO ALUMINIUM KK (TOAU)

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 5147678	A	19930615	JP 91312250	A	19911127	199328 B
JP 3359649	B2	20021224	JP 91312250	A	19911127	200304

Priority Applications (No Type Date): JP 91312250 A 19911127

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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JP 5147678	A		5	B65D-085/00	
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JP 3359649	B2		5	B65D-085/00	Previous Publ. patent JP 5147678
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Bag for preventing electrostatic breaking of electronic parts...
...has water vapour barrier layer laminated with hot meltable inner layer
with antistatic inner side through adhesive- and weak bonding resin
layers

...Abstract (Basic): The inner surface of an antistatic synthetic resin
protective layer is laminated with an outer layer with a conductive
opaque water...

...of the water-vapour barrier layer is laminated with a hot-meltable inner
layer with antistatic innermost side through an adhesive layer and a
weak bonding resin layer, so that the...

...USE/ADVANTAGE - The high moisture - proof , bag used for protecting
electronic parts from electrostatic breaking and moisture safely
protects IC and LSI, etc., at low cost and the condition of the
contents may be evaluated...

Title Terms: BAG ;

International Patent Class (Main): B65D-085/00

...International Patent Class (Additional): B65D-085/38 ...

... B65D-085/86

30/3,K/27 (Item 27 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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009225216

WPI Acc No: 1992-352638/ 199243

XRAM Acc No: C92-156377

XRPX Acc No: N92-268686

Moisture-proofing package and storing material - comprises inorganic powder e.g. calcium oxide, contained in moisture-permeable film bag , and nonwoven fabric auxiliary bag contg. silica gel coloured with cobalt chloride

Patent Assignee: KUREHA CHEM IND CO LTD (KURE)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 4253666	A	19920909	JP 9135263	A	19910205	199243 B

Priority Applications (No Type Date): JP 9135263 A 19910205

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 4253666	A		4	B65D-081/26	

Moisture-proofing package and storing material...

...comprises inorganic powder e.g. calcium oxide, contained in moisture-permeable film bag , and nonwoven fabric auxiliary bag contg. silica gel coloured with cobalt chloride

...Abstract (Basic): An inorganic cpd. powder to form a hydrate is contained in a moisture-permeable film bag , and a nonwoven fabric auxiliary bag contg. silica gel coloured with cobalt chloride is provided at at least one side of the moisture-permeable bag . The moisture-proofing bag is contained in a highly impermeable film...

...The nonwoven fabric auxiliary bag pref. has a see-through portion. The inorganic cpd. to form a hydrate is calcium...

...USE/ADVANTAGE - The moisture-proofing package is for semiconductor chips and maintains the quality of contents for a given time period without any damage...

...Title Terms: PACKAGE ;

30/3,K/28 (Item 28 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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009095659

WPI Acc No: 1992-223085/ 199227

XRAM Acc No: C92-100524

XRPX Acc No: N92-169680

Antistatic packing material used as pouch for desiccant etc. -
comprises nonwoven substrate cloth coated with moisture permeable and
electroconductive organic film

Patent Assignee: MISHIMA SEISHI KK (MIPA); NIPPON KAKOKIZAI KK (NIKA-N)

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 4147844	A	19920521	JP 90273045	A	19901011	199227 B
JP 96013518	B2	19960214	JP 90273045	A	19901011	199611

Priority Applications (No Type Date): JP 90273045 A 19901011

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 4147844	A	8	B32B-007/02		
JP 96013518	B2	6	B32B-001/06		Based on patent JP 4147844

Antistatic packing material used as pouch for desiccant etc...

...Abstract (Basic): An antistatic packing material comprises a substrate
cloth and moisture-permeable and electroconductive film(s) on the...

...g/m2. 24 Hr. and a surface resistivity = 10000 10 power 6 ohms/cm2. The
desiccative is pref. silica gel which controls the environment to
a proper humidity and eliminates electrostaticity caused by the
mutual corrosion of silica paticles or anhydrous Ca Cl2 which is not
electrostatically charged...

...packing material is used for packing goods which are frequently
subjected to dielectric breakdown by electrostatic charge, e.g.,
integrated circuit chips, flexible disks, magnetic cards, hard
disks for word processors, etc. It is also used for forming pouches by
forming its cylinders, putting a desiccative in them and heat sealing
the open ends...

Title Terms: ANTISTATIC ;

International Patent Class (Additional): B65D-065/40 ...

... B65D-081/24 ...

... B65D-081/26

30/3,K/29 (Item 29 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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008244672

WPI Acc No: 1990-131673/ 199017

XRAM Acc No: C90-057796

XRPX Acc No: N90-102027

**Packaging for EMI and RFI shielding with antistatic properties -
comprises inner layer of paper of board contg. carbon fibres and outer
layers contg., and opt. coated with inert clay**

Patent Assignee: JAMES RIVER DIXIE NORTHERN INC (JAME)

Inventor: MCALLISTER R G; MCENROE L E

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4909901	A	19900320	US 87101938	A	19870928	199017 B

Priority Applications (No Type Date): US 87101938 A 19870928

Packaging for EMI and RFI shielding with antistatic properties...

...Abstract (Basic): paper, cellulose fibre paper or paperboard which
contain 0.5-5 wt. % inert clay with antistatic or static
dissipation effect and/or have film or inert clay on external surfaces,
and (2) inner...

...Inner layer pref. contains 3-25 wt. % carbon fibre, and clay is
montmorillonite, bentonite or other natural or synthetic clay. Fil is
pref. prepd. from 1-10% dispersion of **montmorillonite** clay. Packaging
is mfd. on paper making machine by first depositing inner layer contg.
carbon...

...USE/ADVANTAGE - Packaging for electronic components is economical
and simple to mfr. (4pp Dwg.No.0/0)

Title Terms: **PACKAGE** ;

30/3,K/31 (Item 31 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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007662128

WPI Acc No: 1988-296060/ 198842

XRAM Acc No: C88-131289

XRPX Acc No: N88-224593

High heat resistant hybrid IC seated by packaging resin - has glass
layer contg. dispersed anhydrous cobalt chloride powder formed on
inside of package resin

Patent Assignee: TOYOTA JIDOSHA KK (TOYT)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 63215949	A	19880908	JP 8749094	A	19870304	198842 B

Priority Applications (No Type Date): JP 8749094 A 19870304

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 63215949	A		6		

High heat resistant hybrid IC seated by packaging resin...

...has glass layer contg. dispersed anhydrous cobalt chloride powder
formed on inside of package resin

...Abstract (Basic): In a hybrid IC sealed by a packaging resin, e.g.
epoxy resin, silicone resin, etc., a glass layer...

...USE/ADVANTAGE - The hybrid IC has high evaluating function for
moisture resistance and high heat resistance and toughness. The hybrid
IC is easily obtd. at low cost without using lead wire.

...Title Terms: IC ;

30/3,K/32 (Item 32 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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007288855

WPI Acc No: 1987-285862/ 198741

XRAM Acc No: C87-121181

XRPX Acc No: N87-214259

**Packaging film esp. for materials sensitive to static electricity -
comprises co-extruded polyolefin layer and conductive layer of
ethylene-ethyl acrylate copolymer contg. carbon black**

Patent Assignee: FUJI PHOTO FILM CO LTD (FUJIF)

Inventor: AKAO M

Number of Countries: 003 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 240976	A	19871014	EP 87105080	A	19870406	198741 B
US 4871613	A	19891003				198949
EP 240976	B1	19930630	EP 87105080	A	19870406	199326
DE 3786361	G	19930805	DE 3786361	A	19870406	199332
			EP 87105080	A	19870406	

Priority Applications (No Type Date): JP 86U50918 U 19860407

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 240976	A	E	12		
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Designated States (Regional): DE NL

US 4871613	A		9		
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EP 240976	B1	E	15	B32B-027/18	
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Designated States (Regional): DE NL

DE 3786361	G			B32B-027/18	Based on patent EP 240976
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Packaging film esp. for materials sensitive to static electricity...

**...comprises co-extruded polyolefin layer and conductive layer of
ethylene-ethyl acrylate copolymer contg. carbon black**

...Abstract (Basic): I) layer; and a conductive layer contg. more than 50 wt.% ethylene/ethyl acrylate (EA) copolymer (II) (having EA content above 6 (pref. 15-30) wt.%), 7-20 wt.% C black...

...not required, further conductive fillers or other fillers may be incorporated, e.g. metal particles, antistatic agents, and fibrous conductive filler hardened by using a liq. or solvent-soluble polymer. Suitable (III) include silicones; amides of oleic, erucic, stearic and bis-fatty acids; and alkylamines. Suitable flexible sheets include a wide variety of opt. oriented polymer films and papers, which may be metallised, and are laminated using conventional hot-melt adhesives...

...ADVANTAGE - Is useful for packaging photographic or other photosensitive materials, or other prods. such as IC, which can be damaged by static electricity. It is moisture proof, with good antistatic, light-shielding and heat-seal properties, slippability, impact puncture and tear strength. Processing is good...

...Abstract (Equivalent): I) layer; and a conductive layer contg. more than 50 wt.% ethylene/ethyl acrylate (EA) copolymer (II) (having EA content above 6 (pref. 15-30) wt.%), 7-20 wt.% C black...

...not required, further conductive fillers or other fillers may be incorporated, e.g. metal particles, antistatic agents, and fibrous

conductive filler hardened by using a liq. or solvent-soluble **polymer**. Suitable (III) include silicones; amides of oleic, erucic, stearic and bis-fatty acids; and alkylamines. Suitable flexible sheets include a wide variety of opt. oriented **polymer** films and papers, which may be metallised, and are laminated using conventional hot-melt adhesives ...

...ADVANTAGE - Is useful for packaging photographic or other photosensitive materials, or other prods. such as IC, which can be damaged by **static** electricity. It is moisture proof, with good **antistatic**, light-shielding and heat-seal properties, slippability, impact puncture and tear strength. Processing is good...

...Abstract (Equivalent): die extrusion, or by the inflation process, and comprising (A) a conductive ethylene-ethyl acrylate **copolymer** resin layer contg. more than 50 wt.% of ethylene-ethyl acrylate **copolymer** resin, the content of ethyl acrylate of which is more than 6 wt.%; 7-20 ...

...ADVANTAGE - New material has superior antistatic property.

Title Terms: **PACKAGE** ;

30/3,K/33 (Item 33 from file: 347)
DIALOG(R)File 347:JAPIO
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05103378 **Image available**
PACKING SHEET FOR ELECTRONIC PART

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...JAPIO CLASS: Containers)
...JAPIO KEYWORD:Super High Density Integrated Circuits , LSI & GS

ABSTRACT

... sheet which can keep an electronic part in a dry state and prevent generation of **static** electricity...

...a number of separate cells 3 are formed. Each of the cells 3 contains a **desiccant** 15. Adhesive layers 9, 13 treated to prevent electrification are formed on the inner surfaces...

Set	Items	Description
S1	175352	IC OR INTEGRATED()CIRCUIT?
S2	51020	(CIRCUIT OR SILICON OR SEMICONDUCT?R OR SEMI()CONDUCT?R OR ELECTRONIC) () (CHIP OR CHIPS OR COMPONENT?)
S3	3312	SMD OR SURFACE()MOUNT?()DEVICE?
S4	160381	PACKAGE? OR PACK OR PACKS OR PLCC OR QFP
S5	341940	TRAY OR TRAYS OR TUBE OR TUBES
S6	308180	RECEPTACLE? OR CARRIER?
S7	225674	CONTAINER? OR BAG OR BAGS
S8	141250	ELECTROSTATIC? OR STATIC? OR ANTISTATIC? OR ESD OR ESC
S9	14840	DESSICAT? OR DESSICANT? OR DESICCAT? OR DESICCANT?
S10	1843	DRIBOX OR DRI()BOX OR DRYBOX OR DRY()BOX OR DRIPACK OR DRI- ()PACK OR DRYPACK OR DRY()PACK OR DRIPAK OR DRI()PAK OR DRYPAK OR DRY()PAK
S11	7403	(MOISTURE OR HUMIDITY) () (PROOF OR ABSORB? OR ADSORB? OR AB- SORP? OR ADSORP?)
S12	65686	MONTMORILLONITE OR SILICA()GEL OR MOLECULAR()SIEVE?
S13	29208	CALCIUM() (OXIDE OR SULFATE) OR ACTIVATE?()ALUMIN? OR ALUMI- N?()SILICA?
S14	2028	(HUMIDITY OR MOISTURE) () (INDICAT?R? OR MONITOR?) OR HUMITE- CT? OR COBALT()CHLORIDE
S15	275802	POLY() (STYRENE OR PROPYLENE OR VINYL OR AMIDE)
S16	374500	POLYSTYRENE OR POLYPROPYLENE OR POLYMER OR POLYVINYL OR PO- LYAMIDE
S17	331678	ELASTOMER OR PLASTIC? ?
S18	44262	IC=B65D?
S19	13064	S1:S3(10N)S4:S7
S20	156	S19 AND S8 AND S9:S13
S21	9	S20 AND S14
S22	73	S20 AND S4:S7(10N)S15:S17
S23	68	S20 AND S4:S7(5N)S15:S17
S24	9	S22:S23 AND (S14 OR S18)
S25	957511	21 OR S24
S26	11	S21 OR S24
S27	11	S26 AND PY<2003
S28	11	IDPAT (sorted in duplicate/non-duplicate order)

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File 348:EUROPEAN PATENTS 1978-2003/Nov W03

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DIALOG(R)File 348:EUROPEAN PATENTS
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Packaging of semiconductor elements

Verpackung fur Halbleiterelemente

Emballage d'elements semi-conducteurs

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INTERNATIONAL PATENT CLASS: B65D-081/26 ; B65D-065/40 ; H05K-013/00;
H01L-021/00

CITED PATENTS (EP A): US 4156751 A; US 4156751 A; US 2674509 A; US 3704806
A; FR 1140952 A; EP 208259 A; FR 2326347 A; EP 154428 A

ABSTRACT EP 512579 A1

A package of semiconductor elements comprises:

at least one surface-mounting semiconductor device;

a **desiccant** ; and

a moisture-proofing bag member which is made of multi-layered film,
said multi-layered film comprising a barrier layer for preventing
intrusion of moisture, an inner charge preventing layer formed inside of
said barrier, and an outer charge preventing layer formed outside of said
barrier layer,

the surface-mounting semiconductor device and the **desiccant** being
sealed in said moisture-proofing bag member. (see image in original
document)

ABSTRACT WORD COUNT: 80

LEGAL STATUS (Type, Pub Date, Kind, Text):

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CLAIMS A	(English)	EPABF1	179
CLAIMS B	(English)	EPAB96	559
CLAIMS B	(German)	EPAB96	480
CLAIMS B	(French)	EPAB96	730

SPEC A	(English)	EPABF1	7235
SPEC B	(English)	EPAB96	7164
Total word count - document A			7414
Total word count - document B			8933
Total word count - documents A + B			16347

INTERNATIONAL PATENT CLASS: B65D-081/26 ...

... B65D-065/40

...ABSTRACT A1

A package of semiconductor elements comprises:
at least one surface-mounting semiconductor device;
a **desiccant** ; and
a moisture-proofing bag member which is made of multi-layered film,
said multi...

...preventing layer formed outside of said barrier layer,
the surface-mounting semiconductor device and the **desiccant** being
sealed in said moisture-proofing bag member. (see image in original
document)

...SPECIFICATION A1

The present invention relates to the packaging of semiconductor
elements in suitable **containers** .

It is now common for semiconductor elements, such as IC chips
enclosed in resin, to be **packaged** within a suitable **container** for
transportation. Various types of packages are known, such as small
outline **packages** (SOP), quad flat **packages** (QFP), **plastic** leaded
chip **carrier** (PLCC), and similar known **packages** . By way of general
background, packaging of semiconductor elements is discussed in "IC
Packaging Technique...

...Open No. 178877/1986 by Otsuka et al, discloses, as alternatives, the
placing of a **desiccant** within a standard semiconductor element
magazine, or the covering of a tray for supporting semiconductor...

...Firstly, according to the present invention, one or more semiconductor
elements are sealed within a **moisture - proof** container. However, this
in itself is not sufficient to overcome the problem of moisture, since...

...overcome the moisture problem.

Firstly, the container may contain a drying agent, such as a **desiccant**
. In this way, the drying agent removes the moisture from the air within
the package, and so prevents that moisture condensing onto the
semiconductor element. The **desiccant** may be attached to an inner
surface of the container, and/or may be more...

...protected by one or more additional plastics layers.

Thirdly, the present invention may provide a **humidity indicator**
within the container to indicate whether or not an excessive amount of
moisture has entered the package, and so come in contact with the
semiconductor element. The **humidity indicator** is preferably mounted
on an inner surface of the container itself, and is visible through...
hygroscopic material other than the semiconductor elements and, where it
is used, the drying agent (**desiccant**).

The air in the package may be partially removed, to reduce the amount
of moisture...

...even when they have been stored for a long period. Furthermore, by use
of the **humidity indicator** , the amount of **moisture** absorbed by the

semiconductor elements may be detected easily, so enabling selection of those elements which...

...In general, with the present invention, the use of a drying agent, such as a **desiccant**, effectively eliminates the moisture inside the container and so prevents condensation, even at low temperatures...

...package type semiconductor elements, stored in a magazine are put into an inner box, a **desiccant** such as **silica gel** is put into the inner box, and the inner box is then placed into a...

...10(sup 6) ohms on its outer surface in order to prevent any charge. Furthermore, **silica gel** may be placed between the magazine and a wall of the inner box in order...

...the semiconductor elements are stored in the inner boxes, respectively, and a number of surface **package** type resin-molded semiconductor **integrated circuit** devices stored in the magazines, respectively. A **desiccant** may be stored in each of the inner boxes, or in the packaging bag.

Alternatively, or in addition, a **humidity indicator** may be provided in the bag. Normally, the **humidity indicator** will be attached to an inner surface of the bag, so that it is visible therethrough, and the **desiccant** may also be fixed on an inner surface of the bag, or in the inner...

...plurality (at least five to six) of e.g. resin-molded semiconductor elements. Then a **humidity indicator** is provided in the magazine so that it is visible from outside the package.

In...

...a manner as to keep the inside of each recess air-tight. A drying agent (**desiccant**) may be provided in each recess.

After the semiconductor elements have been stored, with the...
...invention;

Fig. 6 is a perspective view showing the appearance and construction of a transparent **moisture - proof** package in accordance with a second embodiment of the present invention;

Fig. 7 is an...

...view taken along line II-II of Fig. 6 and shows the fitting of a **humidity indicator** fitted to the inner surface of a transparent bag-like moisture-proofing container;

Fig. 8...

...6;

Fig. 9 is a perspective view showing the appearance and construction of a transparent **moisture - proof** package in accordance with a third embodiment of the present invention;

Fig. 10 is an enlarged sectional view taken along line II-II in Fig. 9 showing a **humidity indicator** fitted to the inner side surface of the container of the package;

Fig. 11 is a partially cut-away perspective view showing the structure of a film forming the **moisture - proof** package container shown in Fig. 9;

Figs. 12 to 17 are sectional views showing the...

...third embodiments of the present invention;

Fig. 23 is a sectional view of a memory IC device which may be **packaged** in the way discussed with reference to the first to third embodiments of the present...in order to prevent projection of the end

element 3 from the magazine 2.

A **desiccant** such as **silica gel** 5 is put between the wall of the inner box 1 and the side surfaces of the magazine 2 as shown in Fig. 2. Preferably, the **silica gel** 5 is also put into the ends of the magazine, in each case for absorbing...

...6 may be affected by external moisture. For this reason, it is advisable to place **silica gel** on the inner side of the lid.

The box 1 is put into a bag...

...the conductive bag 8 is a laminate film prepared by laminating a polyethylene containing an **antistatic** agent kneaded therein, a polyester film, a carbon conductive layer and an acrylic resin protective ...

...The laminate may further be coated with a vinylidene chloride film. To prevent charge of **IC** (s) inside the **package** 8, the surface intrinsic resistance of the conductive bag 8 is up to 10^{10} (sup...

...bag 8 and are sealed completely by deaeration and the heat seal 9. Since the **silica gel** 5 absorbs the moisture on the outside of the magazines 2 and the elements 3...

...after solder reflow, peel of interface and crack of the elements can be prevented.

Other **desiccants** can be used in the embodiment described above in place of **silica gel**.

Embodiment 2

A second embodiment of the present invention will now be described with reference...

...As shown in Fig. 6, the package of this embodiment is made of a transparent **moisture - proof** film 11. A plurality of **electronic components** 12 such as surface mount **package** type semiconductor devices are stored in one or more carrier members e.g. containers 13...

...the ends 11A, 11B of which are sealed, to form a bag 17. When the **moisture - proof** package is made, a **humidity indicator** 15 for detecting the humidity inside the bag 17 is provided on the inner surface ...

...at a position where the indicator 15 can be seen from outside.

Examples of this **humidity indicator** 15 are as follows:

(i) A warning may be printed on the inner surface of...

...using an ink containing a material which changes colour when exposed to moisture, such as **cobalt chloride**. This printed warning then serves as the **humidity indicator** 15. For example, the warning may read "When the colour of this warning changes from...

...125(°C) for 24 hours".

(ii) As shown in Figs. 6 and 7, a **humidity indicator** (humidity detection label) 15 may be bonded to the inner surface of the film 11...

...a pulp absorb a material which changes colour in the presence of humidity, such as **cobalt chloride**.

(iii) The **humidity indicator** (humidity detection label) 15 may be bonded to the inner box 14 inside the bag...

...be printed thereon, using a material which changes colour when exposed to moisture, such as **cobalt chloride**.

Incidentally, when the **humidity indicator** (humidity detection

label) 15 is bonded to the film 11 or the inner box 14...

...Fig. 8. In Fig. 8, there is shown a polyethylene layer 18 into which an **antistatic** agent is kneaded. This is the innermost layer of the film 11. The polyethylene layer...flake dust. It has high abrasion resistance and printability.

Next, the method of using the **humidity indicator** 15 in the bag 17 will be explained briefly.

First of all, the **humidity indicator** 15 is mounted on the inner surface of the film 11 at a position where...

...shown in Fig. 7. In this embodiment the film 11 is transparent.

A plurality of **containers** 13 storing therein a plurality of **electronic components** 12 (semiconductor elements), such as surface **package** type semiconductor devices, are put into the inner box 14, the box 14 is then...

...11 and the ends 11A and 11B of the film are sealed to form a **moisture - proof** package (the bag 17).

If the colour of the **humidity indicator** 15 has changed from blue to thin violet when the electronic components 12 are to...

...reflow, infrared lamp or vapour phase reflow.

As can be understood, the fact that the **humidity indicator** 15 is visible from the outside of the bag 17 means that the state of...

...moisture-proofing bags 17 is easy.

This embodiment can be applied to packaging of any **electronic components**, in addition to surface mount **package** type semiconductor devices described above, which are affected by humidity.

Embodiment 3

A third embodiment...

...the same reference numerals will be used, where appropriate.

As shown in Fig. 9, the **moisture - proof** container (bag) of this embodiment is made of an opaque film 31. A plurality of **electronic components** 12 (semiconductor elements), such as surface mount **package** type semiconductor devices, are put into carrier members, e.g. containers 13 and the containers...

...31, and its ends 32A and 32B are sealed for moisture-proofing. There is a **humidity indicator** 15 for detecting the internal humidity of the moisture-proofing bag 17 on the inner...

...is visible from the outside through a transparent window 33 in the film 31. This **humidity indicator** 15 may be similar to those used in the second embodiment.

As shown in Figs. 9 and 10, peripheral parts of the **humidity indicator** (humidity detection label) 15 are bonded directly to the inside of a transparent window 33...

...made of a pulp absorb a material which changes the colour by humidity, such as **cobalt chloride**. It is also possible to let the portion of the surface of the box 14...

...Fig. 11.

In Fig. 11, there is shown a polyethylene layer 36 into which an **antistatic** agent is kneaded and which is the innermost layer of the bag 17. The polyethylene...

...flake dust. It has high abrasion resistance and high printability.

The method of using the **humidity indicator 15** in the **moisture - proof package bag 17** of this embodiment is the same as that of the second embodiment.

As can be understood, this embodiment locates the **humidity indicator 15** for detecting the internal humidity of the opaque bag 17 at a window, so...

...plurality of semiconductor devices are fixed is moved in a predetermined direction. At this time, **static** electricity develops between the transfer drum or the relief and the resin molded member, but since the frame is kept as a whole at the same potential, the **static** electricity does not affect the interior of the semiconductor pellet but is grounded. Thereafter, the such as **integrated circuit** devices, semiconductor devices) are put into the moisture-proofing **bag** shown in the foregoing two embodiments, either directly or through a suitable auxiliary member (magazine...

...within a few days and preferably, within a few hours after completion, together with a **desiccant** such as **silica gel**, and are then sealed airtight.

Thereafter, the resin molded devices are packed into a shipment...

...Outline Package (SOP)".

Fig. 13 shows a surface mount element which is called a "**flat plastic package (FPP)** or a **squad flat package (QFP)**". Furthermore, Fig. 14 shows an element for use particularly in a semiconductor memory or the like, which is called a "**small outline J-bend package (SOJ)**". Fig. 15 shows an element which is called a "**plastic leaded chip carrier (PLCC)**" and is used for high density **surface mount devices**. Fig. 16 shows a device which belongs to the butt lead type and is called...

...substrate. Therefore, it is an insert type and is generally called a "**dual in-line package (DIP)**".

In Figs. 12 to 17 described above, a **semiconductor chip 42** is fixed using an **Ag paste 43** to a holder such as tabs or...

...tray 55 forming a carrier member. The tray is made of vinyl chloride to which **antistatic** treatment is applied, and the resin molded devices 53 are put into square recesses 56...

...aligned in the form of array. In this case, it is possible to put directly **silica gel** or the like into each recess 56 and to seal the upper surface air-tight...

...tape 60 to the moisture-proofing sheet shown in Fig. 8 or 11 and putting **silica gel** or the like into each recess 56.

Incidentally, refer to JP-A-62-16378 for...member directly into the moisture-proofing bag without using the an inner box.

Though the **desiccant** is put into a paper bag or the like and then placed inside the interior...

...position such as the recess of the magazine or the carrier tape. For instance, the **desiccant** may be coated and diffused on the inner surface of the moisture-proofing sheet.

As...

...Patent Laid-Open No. 178877/1986.

The relationship between the sectional structure of the memory **IC** device and the **package** in the present invention will be explained. Here, the SOP type package will be described...

...SPECIFICATION B1

The present invention relates to the packaging of semiconductor elements in suitable **containers**.

It is now common for semiconductor elements, such as IC chips enclosed in resin, to be **packaged** within a suitable **container** for transportation. Various types of packages are known, such as small outline **packages** (SOP), quad flat **packages** (QFP), plastic leaded chip **carrier** (PLCC), and similar known **packages**. By way of general background, packaging of semiconductor elements is discussed in "IC Packaging Technique..."

...Open No: 178877/1986 by Otsuka et al, discloses, as alternatives, the placing of a **desiccant** within a standard semiconductor element magazine, or the covering of a tray for supporting semiconductor...

...layer, and an outer charge preventing layer formed outside of said barrier layer; and

a **desiccant** is sealed in said moisture-proofing bag member with said surface-mounting semiconductor device.

In...

...air within the package, and so prevents that moisture condensing onto the semiconductor element. The **desiccant** may be attached to an inner surface of the container, and/or may be more...

...is a moisture-proofing bag member which is made of a laminate film; and

a **humidity indicator** for detecting the humidity inside said moisture-proofing bag member is sealed in said moisture-proofing bag member with said surface-mounting semiconductor device.

The **humidity indicator** is preferably mounted on an inner surface of the container itself, and is visible through...hygroscopic material other than the semiconductor elements and, where it is used, the drying agent (**desiccant**).

The air in the package may be partially removed, to reduce the amount of moisture...

...even when they have been stored for a long period. Furthermore, by use of the **humidity indicator**, the amount of **moisture absorbed** by the semiconductor elements may be detected easily, so enabling selection of those elements which...

...In general, with the present invention, the use of a drying agent, such as a **desiccant**, effectively eliminates the moisture inside the container and so prevents condensation, even at low temperatures...

...package type semiconductor elements, stored in a magazine are put into an inner box, a **desiccant** such as **silica gel** is put into the inner box, and the inner box is then placed into a...

...10(sup 6) ohms on its outer surface in order to prevent any charge. Furthermore, **silica gel** may be placed between the magazine and a wall of the inner box in order...

...the semiconductor elements are stored in the inner boxes, respectively, and a number of surface **package** type resin-molded semiconductor **integrated circuit** devices stored in the magazines, respectively. A **desiccant** may be stored in each of the inner boxes, or in the packaging bag.

Alternatively, or in addition, a **humidity indicator** may be provided in the bag. Normally, the **humidity indicator** will be

attached to an inner surface of the bag, so that it is visible therethrough, and the **desiccant** may also be fixed on an inner surface of the bag, or in the inner... plurality (at least five to six) of e.g. resin-molded semiconductor elements. Then a **humidity indicator** is provided in the magazine so that it is visible from outside the package.

In...

...in a packaging bag made of a moisture-proofing film which is sealed airtight. A **desiccant** is stored or formed inside the packaging bag so as to be visible from outside...

...sealed in such a manner as to keep the inside of each recess airtight. A **desiccant** is then provided in each recess.

After the semiconductor elements have been stored, with the...

...invention;

Fig. 6 is a perspective view showing the appearance and construction of a transparent **moisture - proof** package in accordance with a second embodiment of the present invention;

Fig. 7 is an...

...view taken along line II-II of Fig. 6 and shows the fitting of a **humidity indicator** fitted to the inner surface of a transparent bag-like moisture-proofing container;

Fig. 8...

...6;

Fig. 9 is a perspective view showing the appearance and construction of a transparent **moisture - proof** package in accordance with a third embodiment of the present invention;

Fig. 10 is an enlarged sectional view taken along line II-II in Fig. 9 showing a **humidity indicator** fitted to the inner side surface of the container of the package;

Fig. 11 is a partially cut-away perspective view showing the structure of a film forming the **moisture - proof** package container shown in Fig. 9;

Figs. 12 to 17 are sectional views showing the...

...third embodiments of the present invention;

Fig. 23 is a sectional view of a memory IC device which may be **packaged** in the way discussed with reference to the first to third embodiments of the present 2.

A **desiccant** such as **silica gel** 5 is put between the wall of the inner box 1 and the side surfaces of the magazine 2 as shown in Fig. 2. Preferably, the **silica gel** 5 is also put into the ends of the magazine, in each case for absorbing...

...6 may be affected by external moisture. For this reason, it is advisable to place **silica gel** on the inner side of the lid.

The box 1 is put into a bag...

...the conductive bag 8 is a laminate film prepared by laminating a polyethylene containing an **antistatic** agent kneaded therein, a polyester film, a carbon conductive layer and an acrylic resin protective...

...The laminate may further be coated with a vinylidene chloride film. To prevent charge of IC (s) inside the **package** 8, the surface intrinsic resistance of the conductive bag 8 is up to 10^{10} (sup...

...bag 8 and are sealed completely by deaeration and the heat seal 9. Since the **silica gel** 5 absorbs the moisture on the outside of the magazines 2 and the elements 3...

...after solder reflow, peel of interface and crack of the elements can be prevented.

Other **desiccants** can be used in the embodiment described above in place of **silica gel**.

Embodiment 2

A second embodiment of the present invention will now be described with reference...

...As shown in Fig. 6, the package of this embodiment is made of a transparent **moisture - proof** film 11. A plurality of **electronic components** 12 such as surface mount **package** type semiconductor devices are stored in one or more carrier members e.g. containers 13...

...the ends 11A, 11B of which are sealed, to form a bag 17. When the **moisture - proof** package is made, a **humidity indicator** 15 for detecting the humidity inside the bag 17 is provided on the inner surface...

...at a position where the indicator 15 can be seen from outside.

Examples of this **humidity indicator** 15 are as follows:

(i) A warning may be printed on the inner surface of...

...using an ink containing a material which changes colour when exposed to moisture, such as **cobalt chloride**. This printed warning then serves as the **humidity indicator** 15. For example, the warning may read "When the colour of this warning changes from... 125(degree)C for 24 hours".

(ii) As shown in Figs. 6 and 7, a **humidity indicator** (humidity detection label) 15 may be bonded to the inner surface of the film 11...

...a pulp absorb a material which changes colour in the presence of humidity, such as **cobalt chloride**.

(iii) The **humidity indicator** (humidity detection label) 15 may be bonded to the inner box 14 inside the bag...

...be printed thereon, using a material which changes colour when exposed to moisture, such as **cobalt chloride**.

Incidentally, when the **humidity indicator** (humidity detection label) 15 is bonded to the film 11 or the inner box 14...

...Fig. 8. In Fig. 8, there is shown a polyethylene layer 18 into which an **antistatic** agent is kneaded. This is the innermost layer of the film 11. The polyethylene layer...flake dust. It has high abrasion resistance and printability.

Next, the method of using the **humidity indicator** 15 in the bag 17 will be explained briefly.

First of all, the **humidity indicator** 15 is mounted on the inner surface of the film 11 at a position where...

...shown in Fig. 7. In this embodiment the film 11 is transparent.

A plurality of **containers** 13 storing therein a plurality of **electronic components** 12 (semiconductor elements), such as surface **package** type semiconductor devices, are put into the inner box 14, the box 14 is then...

...11 and the ends 11A and 11B of the film are sealed to form a **moisture**

- **proof** package (the bag 17).

If the colour of the **humidity indicator** 15 has changed from blue to thin violet when the electronic components 12 are to...

...reflow, infrared lamp or vapour phase reflow.

As can be understood, the fact that the **humidity indicator** 15 is visible from the outside of the bag 17 means that the state of...

...moisture-proofing bags 17 is easy.

This embodiment can be applied to packaging of any **electronic components**, in addition to surface mount **package** type semiconductor devices described above, which are affected by humidity.

Embodiment 3

A third embodiment...

...the same reference numerals will be used, where appropriate.

As shown in Fig. 9, the **moisture - proof** container (bag) of this embodiment is made of an opaque film 31. A plurality of **electronic components** 12 (semiconductor elements), such as surface mount **package** type semiconductor devices, are put into carrier members, e.g. containers 13 and the containers...

...31, and its ends 32A and 32B are sealed for moisture-proofing. There is a **humidity indicator** 15 for detecting the internal humidity of the moisture-proofing bag 17 on the inner...

...is visible from the outside through a transparent window 33 in the film 31. This **humidity indicator** 15 may be similar to those used in the second embodiment.

As shown in Figs. 9 and 10, peripheral parts of the **humidity indicator** (humidity detection label) 15 are bonded directly to the inside of a transparent window 33...

...made of a pulp absorb a material which changes the colour by humidity, such as **cobalt chloride**. It is also possible to let the portion of the surface of the box 14...

...Fig. 11.

In Fig. 11, there is shown a polyethylene layer 36 into which an **antistatic** agent is kneaded and which is the innermost layer of the bag 17. The polyethylene...

...flake dust. It has high abrasion resistance and high printability.

The method of using the **humidity indicator** 15 in the **moisture - proof** package bag 17 of this embodiment is the same as that of the second embodiment.

As can be understood, this embodiment locates the **humidity indicator** 15 for detecting the internal humidity of the opaque bag 17 at a window, so...plurality of semiconductor devices are fixed is moved in a predetermined direction. At this time, **static** electricity develops between the transfer drum or the relief and the resin molded member, but since the frame is kept as a whole at the same potential, the **static** electricity does not affect the interior of the semiconductor pellet but is grounded. Thereafter, the...

...to EP-A-0157008.

After baking is complete, the resin molded electronic devices (such as **integrated circuit** devices, semiconductor devices) are put into the moisture-proofing bag shown in the foregoing two embodiments, either directly or through a suitable auxiliary member (magazine...

...within a few days and preferably, within a few hours after completion, together with a **desiccant** such as **silica gel**, and are then sealed airtight.

...Outline Package (SOP)".

Fig. 13 shows a surface mount element which is called a "flat **plastic package** (FPP) or a squad flat **package** (QFP)". Furthermore, Fig. 14 shows an element for use particularly in a semiconductor memory or the like, which is called a "small outline J-bend **package** (SOJ)". Fig. 15 shows an element which is called a "**plastic** leaded chip **carrier** (PLCC)" and is used for high density **surface mount devices**. Fig. 16 shows a device which belongs to the butt lead type and is called...

...substrate. Therefore, it is an insert type and is generally called a "dual in-line **package** (DIP)".

In Figs. 12 to 17 described above, a **semiconductor chip** 42 is fixed using an Ag paste 43 to a holder such as tabs or...

...tray 55 forming a carrier member. The tray is made of vinyl chloride to which **antistatic** treatment is applied, and the resin molded devices 53 are put into square recesses 56...

...aligned in the form of array. In this case, it is possible to put directly **silica gel** or the like into each recess 56 and to seal the upper surface air-tight...

...tape 60 to the moisture-proofing sheet shown in Fig. 8 or 11 and putting **silica gel** or the like into each recess 56.

Incidentally, refer to JP-A-62-16378 for...member directly into the moisture-proofing bag without using the an inner box.

Though the **desiccant** is put into a paper bag or the like and then placed inside the interior...

...position such as the recess of the magazine or the carrier tape. For instance, the **desiccant** may be coated and diffused on the inner surface of the moisture-proofing sheet.

As...

...Patent Laid-Open No. 178877/1986.

The relationship between the sectional structure of the memory IC device and the **package** in the present invention will be explained. Here, the SOP type package will be described...

...CLAIMS A1

1. A packaged device comprising:
 - at least one surface-mounting semiconductor device;
 - a **desiccant**; and
 - a moisture-proofing bag member which is made of multi-layered film, said multi...

...layer formed outside of said barrier layer,
wherein said surface-mounting semiconductor device and said **desiccant** are sealed in said moisture-proofing bag member.

2. A packaged device according to claim...

...claims 1 to 3, wherein said inner charge preventing layer comprises a polyethylene layer kneaded **antistatic** agent.

5. A packaged device according to any one of claims 1 to 4, wherein...

...CLAIMS layer, and an outer charge preventing layer formed outside of said barrier layer; and

a **desiccant** is sealed in said moisture-proofing bag member with said surface-mounting semiconductor device.

2...

...layer of said laminate film, and said innermost layer is made of a polyethylene kneaded **antistatic** agent.

4. A packaged device according to claim 3, wherein said moisture-proofing bag member...

...is a moisture-proofing bag member which is made of a laminate film; and

a **humidity indicator** for detecting the humidity inside said moisture-proofing bag member is sealed in said moisture...

...said surface-mounting semiconductor device.

11. A packaged device according to claim 10, wherein said **humidity indicator** contains a material which changes color upon a change in humidity.

12. A packaged device...

...at least one conveying auxiliary member being in said moisture-proofing bag member, and said **humidity indicator** being in between said at least one conveying auxiliary member and said moisture-proofing bag ...

...further comprising:

an interior box storing a plurality of said conveying auxiliary members therein, said **humidity indicator** being located between said interior box and said moisture-proofing bag member.

14. A packaged...

...A packaged device according to any one of claims 10 to 16, further comprising:

a **desiccant** sealed in said moisture-proofing bag member with said surface-mounting semiconductor device. ...

...CLAIMS d'une charge formee a l'exterieur de ladite couche formant barriere; et

un agent **dessicatif** est contenu d'une facon hermetique dans ledit, element en forme de sac etanche a...

...emballe selon l'une quelconque des revendications 10 a 16, comprenant en outre

un agent **dessicatif** contenu de facon hermetique dans ledit element en forme de sac etanche a l'humidite...

(19)



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European Patent Office
Office européen des brevets



(11) Publication number:

0 458 423 A2

(12)

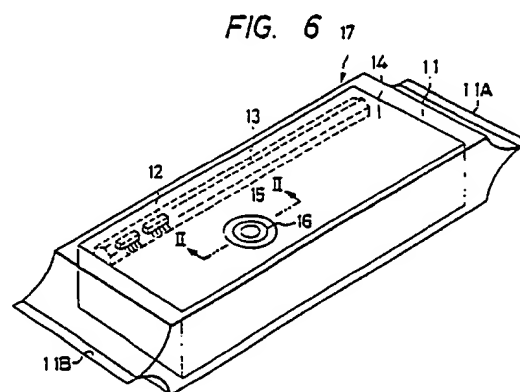
EUROPEAN PATENT APPLICATION(21) Application number: **91202052.6**(51) Int. Cl.⁵: **B65D 81/26**(22) Date of filing: **24.11.87**

This application was filed on 12 - 08 - 1991 as a divisional application to the application mentioned under INID code 60.

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21.08.87 JP 206290/86(43) Date of publication of application:
27.11.91 Bulletin 91/48(60) Publication number of the earlier application in accordance with Art.76 EPC: **0 269 410**(84) Designated Contracting States:
DE FR GB IT(71) Applicant: **HITACHI, LTD.**
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Machida-shi, Tokyo(JP)(74) Representative: **Calderbank, Thomas Roger et al**
MEWBURN ELLIS 2 Cursitor Street
London EC4A 1BQ(GB)(54) **Packaging of semiconductor elements.**

(57) In surface packaging of thin resin packages such as resin molded memory ICs or the like, cracks of the package occur frequently at a solder reflow step where thermal impact is applied to the package because the resin has absorbed moisture before packaging.

To solve this problem, the devices are packaged moisture-tight at an assembly step of the resin molded devices where the resin is still dry, and are taken out from the bags immediately before the execution of surface packaging.

**EP 0 458 423 A2**

28/5,K/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00477979

Packaging of semiconductor elements.

Verpackung fur Halbleiterelemente.

Emballage d'elements semi-conducteurs.

PATENT ASSIGNEE:

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PATENT (CC, No, Kind, Date): EP 458423 A2 911127 (Basic)
EP 458423 A3 911211
EP 458423 B1 940921

APPLICATION (CC, No, Date): EP 91202052 871124;

PRIORITY (CC, No, Date): JP 86278610 861125; JP 86206290 870821

DESIGNATED STATES: DE; FR; GB; IT

RELATED PARENT NUMBER(S) - PN (AN):

EP 269410 (EP 873103444)

INTERNATIONAL PATENT CLASS: B65D-081/26

CITED PATENTS (EP A): US 4156751 A; US 4156751 A; US 4699830 A; US 4699830
A; US 2446361 A; EP 38179 A; US 2251609 A; FR 2326347 A; US 3959526 A; US
4590534 A; DE 3624194 A

CITED REFERENCES (EP A):

PATENT ABSTRACTS OF JAPAN

July 1985

February 1985;

vol. 9, no. 162 (M-394)6
& JP-A-60 036 165 (NIPPON DENKI KK) 25

ABSTRACT EP 458423 A2

In surface packaging of thin resin packages such as resin molded memory
ICs or the like, cracks of the package occur frequently at a solder
reflow step where thermal impact is applied to the package because the
resin has absorbed moisture before packaging.

To solve this problem, the devices are packaged moisture-tight at an
assembly step of the resin molded devices where the resin is still dry,
and are taken out from the bags immediately before the execution of
surface packaging. (see image in original document)

ABSTRACT WORD COUNT: 88

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 911127 A2 Published application (Alwith Search Report
;A2without Search Report)

Search Report: 911211 A3 Separate publication of the European or
International search report

Examination: 920805 A2 Date of filing of request for examination:
920609

Examination: 930908 A2 Date of despatch of first examination report:
930728

Grant: 940921 B1 Granted patent

Oppn None: 950913 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY: .

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	837

SPEC A (English) EPABF1 7235
Total word count - document A 8072
Total word count - document B 0
Total word count - documents A + B 8072

INTERNATIONAL PATENT CLASS: B65D-081/26

...SPECIFICATION A3

The present invention relates to the packaging of semiconductor elements in suitable **containers**.

It is now common for semiconductor elements, such as **IC** chips enclosed in resin, to be **packaged** within a suitable **container** for transportation. Various types of packages are known, such as small outline **packages** (SOP), quad flat **packages** (QFP), **plastic** leaded chip **carrier** (PLCC), and similar known **packages**. By way of general background, packaging of semiconductor elements is discussed in "IC Packaging Technique..."

...Open No. 178877/1986 by Otsuka et al, discloses, as alternatives, the placing of a **desiccant** within a standard semiconductor element magazine, or the covering of a tray for supporting semiconductor...

...Firstly, according to the present invention, one or more semiconductor elements are sealed within a **moisture - proof** container. However, this in itself is not sufficient to overcome the problem of moisture, since...

...overcome the moisture problem.

Firstly, the container may contain a drying agent, such as a **desiccant**. In this way, the drying agent removes the moisture from the air within the package, and so prevents that moisture condensing onto the semiconductor element. The **desiccant** may be attached to an inner surface of the container, and/or may be more...

...protected by one or more additional plastics layers.

Thirdly, the present invention may provide a **humidity indicator** within the container to indicate whether or not an excessive amount of moisture has entered the package, and so come in contact with the semiconductor element. The **humidity indicator** is preferably mounted on an inner surface of the container itself, and is visible through... hygroscopic material other than the semiconductor elements and, where it is used, the drying agent (**desiccant**).

The air in the package may be partially removed, to reduce the amount of moisture...

...even when they have been stored for a long period. Furthermore, by use of the **humidity indicator**, the amount of **moisture absorbed** by the semiconductor elements may be detected easily, so enabling selection of those elements which...

...In general, with the present invention, the use of a drying agent, such as a **desiccant**, effectively eliminates the moisture inside the container and so prevents condensation, even at low temperatures...

...package type semiconductor elements, stored in a magazine are put into an inner box, a **desiccant** such as **silica gel** is put into the inner box, and the inner box is then placed into a...

...10(sup 6) ohms on its outer surface in order to prevent any charge. Furthermore, **silica gel** may be placed between the magazine and a wall of the inner box in order...

...the semiconductor elements are stored in the inner boxes, respectively, and a number of surface **package** type resin-molded semiconductor **integrated circuit** devices stored in the magazines, respectively. A **desiccant** may be stored in each of the inner boxes, or in the packaging bag.

Alternatively, or in addition, a **humidity indicator** may be provided in the bag. Normally, the **humidity indicator** will be attached to an inner surface of the bag, so that it is visible therethrough, and the **desiccant** may also be fixed on an inner surface of the bag, or in the inner...

...plurality (at least five to six) of e.g. resin-molded semiconductor elements. Then a **humidity indicator** is provided in the magazine so that it is visible from outside the package.

In...

...such a manner as to keep the inside of each recess airtight. A drying agent (**desiccant**) may be provided in each recess.

After the semiconductor elements have been stored, with the...

...invention;

Fig. 6 is a perspective view showing the appearance and construction of a transparent **moisture - proof** package in accordance with a second embodiment of the present invention;

Fig. 7 is an...

...view taken along line II-II of Fig. 6 and shows the fitting of a **humidity indicator** fitted to the inner surface of a transparent bag-like moisture-proofing container;

Fig. 8...

...6;

Fig. 9 is a perspective view showing the appearance and construction of a transparent **moisture - proof** package in accordance with a third embodiment of the present invention;

Fig. 10 is an enlarged sectional view taken along line II-II in Fig. 9 showing a **humidity indicator** fitted to the inner side surface of the container of the package;

Fig. 11 is a partially cut-away perspective view showing the structure of a film forming the **moisture - proof** package container shown in Fig. 9;

Figs. 12 to 17 are sectional views showing the...

...third embodiments of the present invention;

Fig. 23 is a sectional view of a memory **IC** device which may be **packaged** in the way discussed with reference to the first to third embodiments of the present...in order to present projection of the end element 3 from the magazine 2.

A **desiccant** such as **silica gel** 5 is put between the wall of the inner box 1 and the side surfaces of the magazine 2 as shown in Fig. 2. Preferably, the **silica gel** 5 is also put into the ends of the magazine, in each case for absorbing...

...6 may be affected by external moisture. For this reason, it is advisable to place **silica gel** on the inner side of the lid.

The box 1 is put into a bag...

...the conductive bag 8 is a laminate film prepared by laminating a polyethylene containing an **antistatic** agent kneaded therein, a polyester film, a carbon conductive layer and an acrylic resin protective

...

...The laminate may further be coated with a vinylidene chloride film. To prevent charge of IC (s) inside the package 8, the surface intrinsic resistance of the conductive bag 8 is up to 10¹⁰(sup...

...bag 8 and are sealed completely by deaeration and the heat seal 9. Since the silica gel 5 absorbs the moisture on the outside of the magazines 2 and the elements 3...

...after solder reflow, peel of interface and crack of the elements can be prevented.

Other desiccants can be used in the embodiment described above in place of silica gel .

Embodiment 2

A second embodiment of the present invention will now be described with reference...

...As shown in Fig. 6, the package of this embodiment is made of a transparent moisture - proof film 11. A plurality of electronic components 12 such as surface mount package type semiconductor devices are stored in one or more carrier members e.g. containers 13...

...the ends 11A, 11B of which are sealed, to form a bag 17. When the moisture - proof package is made, a humidity indicator 15 for detecting the humidity inside the bag 17 is provided on the inner surface ...

...at a position where the indicator 15 can be seen from outside.

Examples of this humidity indicator 15 are as follows:

(i) A warning may be printed on the inner surface of...

...using an ink containing a material which changes colour when exposed to moisture, such as cobalt chloride . This printed warning then serves as the humidity indicator 15. For example, the warning may read "When the colour of this warning changes from...

...125(degree)C for 24 hours".

(ii) As shown in Figs. 6 and 7, a humidity indicator (humidity detection label) 15 may be bonded to the inner surface of the film 11...

...a pulp absorb a material which changes colour in the presence of humidity, such as cobalt chloride .

(iii) The humidity indicator (humidity detection label) 15 may be bonded to the inner box 14 inside the bag...

...be printed thereon, using a material which changes colour when exposed to moisture, such as cobalt chloride .

Incidentally, when the humidity indicator (humidity detection label) 15 is bonded to the film 11 or the inner box 14...

...Fig. 8. In Fig. 8, there is shown a polyethylene layer 18 into which an antistatic agent is kneaded. This is the innermost layer of the film 11. The polyethylene layer...flake dust. It has high abrasion resistance and printability.

Next, the method of using the humidity indicator 15 in the bag 17 will be explained briefly.

First of all, the humidity indicator 15 is mounted on the inner surface of the film 11 at a position where...

...shown in Fig. 7. In this embodiment the film 11 is transparent.

A plurality of containers 13 storing therein a plurality of

electronic components 12 (semiconductor elements), such as surface **package** type semiconductor devices, are put into the inner box 14, the box 14 is then...

...11 and the ends 11A and 11B of the film are sealed to form a **moisture - proof** package (the bag 17).

If the colour of the **humidity indicator 15** has changed from blue to thin violet when the electronic components 12 are to...

...reflow, infrared lamp or vapour phase reflow.

As can be understood, the fact that the **humidity indicator 15** is visible from the outside of the bag 17 means that the state of...

...moisture-proofing bags 17 is easy.

This embodiment can be applied to packaging of any **electronic components**, in addition to surface mount **package** type semiconductor devices described above, which are affected by humidity.

Embodiment 3

A third embodiment...

...the same reference numerals will be used, where appropriate.

As shown in Fig. 9, the **moisture - proof** container (bag) of this embodiment is made of an opaque film 31. A plurality of **electronic components 12** (semiconductor elements), such as surface mount **package** type semiconductor devices, are put into carrier members, e.g. containers 13 and the containers...

...31, and its ends 32A and 32B are sealed for moisture-proofing. There is a **humidity indicator 15** for detecting the internal humidity of the moisture-proofing bag 17 on the inner...

...is visible from the outside through a transparent window 33 in the film 31. This **humidity indicator 15** may be similar to those used in the second embodiment.

As shown in Figs. 9 and 10, peripheral parts of the **humidity indicator** (humidity detection label) 15 are bonded directly to the inside of a transparent window 33...

...made of a pulp absorb a material which changes the colour by humidity, such as **cobalt chloride**. It is also possible to let the portion of the surface of the box 14...

...Fig. 11.

In Fig. 11, there is shown a polyethylene layer 36 into which an **antistatic** agent is kneaded and which is the innermost layer of the bag 17. The polyethylene...

...flake dust. It has high abrasion resistance and high printability.

The method of using the **humidity indicator 15** in the **moisture - proof** package bag 17 of this embodiment is the same as that of the second embodiment.

As can be understood, this embodiment locates the **humidity indicator 15** for detecting the internal humidity of the opaque bag 17 at a window, so...

...plurality of semiconductor devices are fixed is moved in a predetermined direction. At this time, **static** electricity develops between the transfer drum or the relief and the resin molded member, but since the frame is kept as a whole at the same potential, the **static** electricity does not affect the interior of the semiconductor pellet but is grounded.

Thereafter, the as **integrated circuit** devices, semiconductor devices) are put into the moisture-proofing **bag** shown in the foregoing two embodiments, either directly or through a suitable auxiliary member (magazine...

...within a few days and preferably, within a few hours after completion, together with a **desiccant** such as **silica gel**, and are then sealed airtight.

Thereafter, the resin molded devices are packed into a shipment...

...Outline Package (SOP)".

Fig. 13 shows a surface mount element which is called a "flat **plastic package** (FPP) or a squad flat **package** (QFP)". Furthermore, Fig. 14 shows an element for use particularly in a semiconductor memory or the like, which is called a "small outline J-bend **package** (SOJ)". Fig. 15 shows an element which is called a "**plastic** leaded chip carrier (PLCC)" and is used for high density **surface mount devices**. Fig. 16 shows a device which belongs to the butt lead type and is called...

...substrate. Therefore, it is an insert type and is generally called a "dual in-line **package** (DIP)".

In Figs. 12 to 17 described above, a **semiconductor chip** 42 is fixed using an Ag paste 43 to a holder such as tabs or...

...tray 55 forming a carrier member. The tray is made of vinyl chloride to which **antistatic** treatment is applied, and the resin molded devices 53 are put into square recesses 56...

...aligned in the form of array. In this case, it is possible to put directly **silica gel** or the like into each recess 56 and to seal the upper surface air-tight...

...tape 60 to the moisture-proofing sheet shown in Fig. 8 or 11 and putting **silica gel** or the like into each recess 56.

Incidentally, refer to JP-A-62-16378 for...member directly into the moisture-proofing bag without using the an inner box.

Though the **desiccant** is put into a paper bag or the like and then placed inside the interior...

...position such as the recess of the magazine or the carrier tape. For instance, the **desiccant** may be coated and diffused on the inner surface of the moisture-proofing sheet.

As...

...Patent Laid-Open No. 178877/1986.

The relationship between the sectional structure of the memory **IC** device and the **package** in the present invention will be explained. Here, the SOP type package will be described...

...CLAIMS method of packaging semiconductor devices according to any one of the preceding claims, wherein a **desiccant** is sealed in said moisture-proofing bags.

5. A method of packaging semiconductor devices according...

...laminate includes, in order from innermost layer, a first of a polyethylene film having an **antistatic** agent therein, a polyester film layer having a pinhole proofing function, said film layer that ...

...resin moulded semiconductor devices according to any one of claims 6 to

14, wherein a **desiccant** is sealed in said moisture-proofing bag member.

16. A method of mounting resin moulded...

...of mounting resin moulded semiconductor devices according to claim 1 or claim 17, wherein said **package** is a flat **plastic package**.

19. A method of mounting resin moulded semiconductor devices according to claim 1 or claim...

...of mounting resin moulded semiconductor devices according to claim 1 or claim 17, wherein said **package** is a **plastic** leaded chip **carrier package**.

28/5,K/3 (Item 3 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00272836

Packaging of semiconductor elements.

Verpackung fur Halbleiterelemente.

Emballage d'elements semi-conducteurs.

PATENT ASSIGNEE:

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PATENT (CC, No, Kind, Date): EP 269410 A2 880601 (Basic)
EP 269410 A3 890208
EP 269410 B1 920422

APPLICATION (CC, No, Date): EP 87310344 871124;

PRIORITY (CC, No, Date): JP 86278610 861125; JP 87206290 870821

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS: B65D-081/26

CITED PATENTS (EP A): US 2446361 A; US 2446361 A; EP 38179 A; US 2251609 A;
GB 1128155 A; DE 922516 C; DE 922516 C

ABSTRACT EP 269410 A2

A plurality of semiconductor elements 12 are located within suitable carriers 13, and a plurality of such carriers 13 are enclosed within a bag 17 or other container. The bag 17 is made from a **moisture - proof** film 11 which is air sealed to enclose the elements 12. To eliminate moisture within the bag 17, a **desiccant** may be provided within the bag 17 and/or within the carriers 13. Furthermore a **humidity indicator** 15 may be provided within the bag 17, which is visible from the outside of the bag 17, and hence provides a visual indication if there is condensation within the bag 17 which could affect the elements 12. As a further step, the film 11 may be multi-layered with one layer being a metal sheet.

In this way, contamination by moisture of the semiconductor elements during storage or transport may be reduced, thereby reducing the risk of damage when the semiconductor elements are mounted on a substrate.

ABSTRACT WORD COUNT: 163

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 880601 A2 Published application (A1with Search Report
;A2without Search Report)

Search Report: 890208 A3 Separate publication of the European or
International search report

Examination: 890906 A2 Date of filing of request for examination:
890710

Examination: 900110 A2 Date of despatch of first examination report:
891127

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Oppn None: 930414 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	300

CLAIMS B	(German)	EPBBF1	742
CLAIMS B	(French)	EPBBF1	878
SPEC B	(English)	EPBBF1	7574
Total word count - document A			0
Total word count - document B			9494
Total word count - documents A + B			9494

INTERNATIONAL PATENT CLASS: B65D-081/26

...ABSTRACT enclosed within a bag 17 or other container. The bag 17 is made from a **moisture - proof** film 11 which is air sealed to enclose the elements 12. To eliminate moisture within the bag 17, a **desiccant** may be provided within the bag 17 and/or within the carriers 13. Furthermore a **humidity indicator** 15 may be provided within the bag 17, which is visible from the outside of...

...SPECIFICATION B1

The present invention relates to the packaging of semiconductor elements in suitable **containers**.

It is now **common** for semiconductor elements, such as **IC chips** enclosed in **resin**, to be **packaged** within a suitable **container** for transportation. Various **types** of packages are known, such as small outline packages (SOP), quad flat **packages** (**QFP**), **plastic** leaded **chip carrier** (**PLCC**), and similar **known packages**. By way of **general** background, packaging of semiconductor elements is discussed in "IC Packaging Technique", published by Kogyo Chosaki KK, 15th January, 1980, pp. 135-156.

As the...

...semiconductor element (normally at the time the device is enclosed in resin) to the time **that** the package is mounted on a suitable substrate. The cause of the moisture on the...

...Open No. 178877/1986 by Otsuka et al, discloses, as alternatives, the placing of a **desiccant** within a standard semiconductor element magazine, or the covering of a tray for supporting semiconductor...
...where the size of the packages are reduced.

Therefore, the present invention seeks to provide a **way** of reducing, or eliminating, moisture within a package for one or more semiconductor elements, and...

...Firstly, according to the present invention, one or more semiconductor elements are sealed within a **moisture - proof** container. However, this in itself is not sufficient to overcome the problem of moisture, since...

...within the container may itself contain moisture, and also there is the possibility that there **may** be some leakage of moisture through the container. Therefore, the present invention provides a number of features which, either individually, or in combination, can be used to overcome the moisture problem.

Firstly, the container may contain a drying agent, such as a **desiccant**. In this way, the drying agent removes the moisture from the air within the package, and so prevents that moisture condensing onto the semiconductor element. The **desiccant** may be attached to an inner surface of the **container**, and /or may be more proximate the semiconductor element(s).

Secondly, the material of the enclosing...

...metal sheet. The metal sheet has a lower vapour permeability than organic films, such as **plastic** films, and may therefore prevent the passage of moisture through the material of the **container**. Furthermore

, the metal layer may resist the formation of **pin - holes** within the container material. A conductive layer may also be provided in the multi-layered film of the container, and this will normally have to be protected by **one** or more additional **plastics** layers.

Thirdly, the present invention may provide a **humidity indicator** within the container to indicate whether or not an excessive amount of moisture has entered the package, and so come in contact with the semiconductor element. The **humidity indicator** is preferably mounted on an inner surface of the container itself, and is visible through... film forming the container. To seal the container, it may be press-sealed air-tight and an ultrasonic wave or heat applied to it to cause a bond to be formed...

...hygroscopic material other than the semiconductor elements and, where it is used, the drying agent (**desiccant**).

The air in the package may be partially removed, to reduce the amount of moisture...

...the existence of pin-holes may be determined by the amount of expansion of the **bag** , or by its subsequent **deflation** .

Thus the present invention provides a **package** comprising:

a semiconductor element (3,12) having at least one **semiconductor chip** on which at least one electronic device is formed which semiconductor element (3,12) has...

...least one resin moulded member (41) covering all the main plane of the at least **one chip** ; and

a bag member (8 ,17) which surrounds the element (3,12) and seals the element in an air-tight...

...mounting semiconductor element; and the bag member (8,17) comprises a multi-layered film containing **at least one** metal sheet (35) whereby moisture is prevented from reaching the element in the...

...an element substrate.

The present invention also provides an air-tight package made of a **moisture - proof** film which package comprises:

a plurality of semiconductor elements (3,12) which **have** not been **mounted** on an element substrate and each element includes a resin moulded semiconductor device;;

a plurality...

...element storage magazines (2,13) is provided within the bag member (8,17); and

a **dessicant** (5) is provided within the bag member (8,17).

Thus, the present invention may provide...

...elements both simple and safe. It is particularly, but not exclusively, appropriate for resin-moulded **electronic components** , particularly those in which the electronic devices are **sealed** by a thin resin encapsulant, which is easily damaged by moisture. For example, it may...

...applied to surface mount semiconductor elements. It reduces, or eliminates, the need for baking of the **semiconductor** elements, even when they have been stored for a long period. Furthermore, by use of the **humidity indicator** , the amount of **moisture absorbed** by the semiconductor elements may be detected easily, so enabling selection of those elements which...

...In general, with the present invention, the use of a drying agent, such as a **desiccant** , effectively eliminates the moisture inside the

container and so prevents condensation, even at low temperatures .

The present invention is suitable for automatic packaging techniques.

Before describing embodiments of the invention...

...package type semiconductor elements, stored in a magazine are put into an inner box, a **desiccant** such as **silica gel** is put into the inner box, and the inner box is then placed into a...

...bag. The bag has, as the base, a polyester having moisture permeability of up to $2.0/\text{m}(\text{sup } 2)$. **24 hours** , for example, and having a surface intrinsic **resistance** of $10(\text{sup } 6)$ ohms on the outside and up to $10(\text{sup } 1)(\text{sup } 1)$ ohms on the **inner side** , and the open portion of the bag is **heat - sealed** after removing the air.

According to this arrangement, the surface mount package type package is stored in the **inner** box and the moisture-proofing bag outside the box is sealed completely by deaeration and...

...is eliminated. Because a polyester having moisture permeability of up to $2.0 \text{ g/m}(\text{sup } 2)$.24 hours is used as the base of the resin bag in this arrangement, moisture...

... $10(\text{sup } 6)$ ohms on its outer surface in order to prevent any charge. Furthermore, **silica gel** may be placed between the magazine and a wall of the inner box in order...

...which are stored in a plastic magazine, whose outside portion is sealed airtight by a **moisture** -proofing film may be provided.

Another arrangement comprises an outer box made of a cardboard, a plurality (at least five to six) packaging bags made of a **moisture - proofing** film and sealed airtight, and a plurality of inner boxes made of paper stored in...

...the semiconductor elements are stored in the inner boxes, respectively, and a number of surface **package** type resin-molded semiconductor **integrated circuit** devices stored in the magazines, respectively. A **desiccant** may be stored in **each** of the inner boxes, or in the packaging **bag** .

Alternatively, or in addition, a **humidity indicator** may be provided in the bag. Normally, the **humidity indicator** will be attached to an inner surface of the bag, so that it is visible therethrough, and the **desiccant** may also be fixed on an inner surface of the **bag** , or in the inner boxes.

The magazines may **be closely** aligned, with their ends adjacent, as this permits the size of the package to be...

...plurality (at least five to six) of e.g. resin-molded semiconductor elements. Then a **humidity indicator** is provided in the magazine so that it is visible from outside the package.

In...

...such a manner as to keep the inside of each recess airtight. A drying agent (**desiccant**) may be provided in each recess.

After the semiconductor elements have been stored, with the resin-molded semiconductor devices enclosed in a moisture-proofing **bag** **lest** they should absorb moisture, the devices may be taken out of the bag, and placed...

...wiring substrate. The leads of the resin-molded devices may then be soldered to the **wirings** on the wiring substrate with the resin-molded part of the devices receiving thermal impact.

Prior to enclosure in the container (bag) the resin-molded

semiconductor devices may be fabricated by sealing a semiconductor chip and inner leads by a resin. An ink mark may then be applied to the resulting resin-molded member, and the resin-molded member as a whole after marking exposed to a high temperature for baking the ink. The elements (devices) are then sealed airtight after completion before they absorb moisture.

Thus, in the fabrication of a semiconductor memory device, leads are fixed to semiconductor chip holding portions made of the same metal sheet as that of the leads through one of the main planes of the chip. Then pads are bonded on...

...projects, by molding the chip, the wires, the chip holding members and the inner leads in a resin. The resin-molded element is the packaged in a moisture-proofing bag lest the resin-molded element absorbs moisture.

Embodiments of the...invention;

Fig. 6 is a perspective view showing the appearance and construction of a transparent moisture - proof package in accordance with a second embodiment of the present invention;

Fig. 7 is an enlarged sectional view taken along line II- II of Fig. 6 and shows the fitting of a humidity indicator fitted to the inner surface of a transparent bag-like moisture-proofing container;

Fig. 8 is a partially cut-away perspective view showing the structure of the transparent bag-like container shown in...

...6;

Fig. 9 is a perspective view showing the appearance and construction of a transparent moisture - proof package in accordance with a third embodiment of the present invention;

Fig. 10 is an enlarged sectional view taken along line II-II in Fig. 9 showing a humidity indicator fitted to the inner side surface of the container of the package;

Fig. 11 is a partially cut-away perspective view showing the structure of a film forming the moisture - proof package container shown in Fig. 9;

Figs. 12 to 17 are sectional views showing the...

...a packaging method useful for the first to third embodiments of the present invention;

Fig. 23 is a sectional view of a memory IC device which may be packaged in the way discussed with reference to the first to third embodiments of the present...

...showing the mounting of such devices on a substrate; and

Fig. 25 is a schematic view of a solder dipping method for such a device.

Embodiment 1

The first embodiment of the present invention is...

...in order to prevent projection to the end element 3 from the magazine 2.

A desiccant such as silica gel 5 is put between the wall of the inner box 1 and the side surfaces of the magazine 2 as shown in Fig. 2. Preferably, the silica gel 5 is also put into the ends of the magazine, in each case for absorbing moisture. The flange 7 of a lid 6 is folded inward and the lid 6 is closed. When a package 3 is taken out by lifting the lid 6, the inner surface of the lid 6 may be affected by external moisture. For this reason, it is advisable to place silica gel on the inner side of the lid.

The box 1 is put into a bag 8 such as shown in Fig. 5 and after

deaeration, the open portion 9 of the bag 8 is heat-sealed.

The bag 8 is made of a transparent, electrically conductive film using a polyester having moisture permeability...

...such as quantity, production lot number, and so forth, may then be put on the surface of the box 1.

An example of a film suitable to form the conductive bag 8 is a laminate film prepared by laminating a polyethylene containing an antistatic agent kneaded therein, a polyester film, a carbon conductive layer and an acrylic resin protective film in order named from the inside. The laminate may further be coated with a vinylidene chloride film. To prevent charge of IC (s) inside the package 8, the surface intrinsic resistance of the conductive bag is up to 10(sup 6) ohms on the outer surface and up to 10(sup 1)(sup 1) ohms on the inner...
...bag and the bag should be kept in the environment of low humidity may be printed on the surface of the bag 8 or a label 10 bearing such warnings may be...

...bag 8 and are sealed completely by deaeration and the heat seal 9. Since the silica gel 5 absorbs the moisture on the outside of the magazines 2 and the elements 3 are not affected by external moisture, baking of the package or the elements before use becomes unnecessary...

...after solder reflow, peel of interface and crack of the elements can be prevented.

Other desiccants can be used in the embodiment described above in place of silica gel .
Embodiment 2

A second embodiment of the present invention will now be described with reference...

...transparent package of this embodiment.

As shown in Fig. 6, the package of this embodiment is made of a transparent moisture - proof film 11. A plurality of electronic components 12 such as surface mount package type semiconductor devices are stored in one or more carrier members e.g. containers 13 in sealed, to form a bag 17. When the moisture - proof package is made, a humidity indicator 15 for detecting the humidity inside the bag 17 is provided on the inner surface...

...at a position where the indicator 15 can be seen from outside.

Examples of this humidity indicator 15 are as follows:

(i) A warning may be printed on the inner surface of...

...using an ink containing a material which changes colour when exposed to moisture, such as cobalt chloride . This printed warning then serves as the humidity indicator 15. For example, the warning may read "When the colour of this warning changes from...

...125(degree)C for 24 hours".

(ii) As shown in Figs. 6 and 7, a humidity indicator (humidity detection label) 15 may be bonded to the inner surface of the film 11 by an adhesive 16 having vent holes 16A so that it can be seen from outside the bag 17. This humidity detection label is prepared...

...a pulp absorb a material which changes colour in the presence of humidity, such as cobalt chloride .

(iii) The humidity indicator (humidity detection label) 16 may be bonded to the inner box 14 inside the bag 17 or a warning may be printed thereon, using a material which changes colour when exposed to

moisture, such as **cobalt chloride** .

Incidentally, when the **humidity indicator** (humidity detection label) 15 is bonded to the **film** 11 or the inner box 14, there is no **need** to print a separate warning.

Next, the structure of the film 11 will be discussed with...

...Fig. 8. In Fig. 8, there is shown a polyethylene layer 18 into which an **antistatic** agent is kneaded. This is the innermost layer of the film 11. The polyethylene layer 18 may be 63 (μ m) thick, for **example** , and prevents frictional charge, permits heat sealing of the bag 17, determines the ease of opening...

...proofing on the polyethylene layer 18, and there is a polyester film layer 20 having a **barrier** layer for preventing intrusion of **moisture** on the polyester film layer 19. The barrier layer 20 is prepared, for example, by...

...carbon is provided on the polyester film 21. The polyester film 21 reinforces the mechanical **strength** and dielectric resistance of the film 11 while the carbon conductive layer 22 prevents charge build-up . The carbon conductive layer 22 does not degrade with time and does not have any humidity dependence. The material of the protective layer 23...

...flake dust. It has high abrasion resistance and printability.

Next, the method of using the **humidity indicator** 15 in the bag 17 will be explained briefly.

First of all, the **humidity indicator** 15 is mounted on the inner surface of the film 11 at a position where...

...indicator 15 is visible from outside of the bag 17, as shown in Fig. 7. In this embodiment the film 11 is transparent.

A plurality of **containers** 13 storing therein a plurality of **electronic components** 12 (semiconductor elements), such as **surface package** type semiconductor devices, are put into the inner box 14, the box 14 is then...

...11 and the ends 11A and 11B of the film are sealed to form a **moisture - proof** package (the bag 17).

If the colour of the **humidity indicator** 15 has changed from blue to thin violet when the electronic components 12 are to be used, the **components** 12 should be taken out of the bag 17, baked at 125(degree)C for 24...

...reflow, infrared lamp or vapour phase reflow.

As can be understood, the fact that the **humidity indicator** 15 is visible from the outside of the bag 17 means that the state of...

...moisture-proofing bags 17 is easy.

This embodiment can be applied to packaging of any **electronic components** , in addition to surface mount **package** type semiconductor devices described above, which are affected by humidity.

Embodiment 3

A third embodiment...

...the same reference numerals will be used, where appropriate.

As shown in Fig. 9, the **moisture - proof** container (bag) of this embodiment is made of an opaque film 31. A plurality of **electronic components** 12 (semiconductor elements), such as surface mount **package** type semiconductor devices, are put into carrier members, e.g. containers 13 and the containers...

...31, and its ends 32A and 32B are sealed for moisture-proofing. There is a **humidity indicator** 15 for detecting the internal humidity of the moisture-proofing bag 17 on the inner...

...is visible from the outside through a transparent window 33 in the film 31. This **humidity indicator** 15 may be similar to those used in the second embodiment.

As shown in Figs. 9 and 10, peripheral parts of the **humidity indicator** (humidity detection label) 15 are bonded directly to the inside of a transparent window 33 in the opaque film 31 by an adhesive so that the indicator can be seen from outside the bag 17 through the window 33. This humidity detection label may be prepared, for example, by letting paper made of a pulp absorb a material which changes the colour by humidity, such as **cobalt chloride**. It is also possible to let the portion of the surface of the box 14...

...Fig. 11.

In Fig. 11, there is shown a polyethylene layer 36 into which an **antistatic agent** is kneaded and which is the innermost layer of the bag 17. The polyethylene layer 36 is 60 (mu)m thick, for example, and prevents frictional...

...flake dust. It has high abrasion resistance and high printability.

The method of using the **humidity indicator** 15 in the **moisture - proof** package bag 17 of this embodiment is the same as that of the second embodiment.

As can be understood, this embodiment locates the **humidity indicator** 15 for detecting the internal humidity of the opaque bag 17 at a window, so...

...55,070, filed July 5, 1979), U.S. Patent Application Serial No. 898,535 (filed **August** 21, 1986), and GB-A-2157607.

Furthermore, an about 20 to 200 (mu)m thick high purity polyimide layer or silicon resin layer is formed by potting on the chip after completion of bonding in order to prevent any soft errors by a-rays fins on the lead are completely removed, the unnecessary portions of the lead frame are cut off, the molded member is cut away from the frame and the...

...a desired shape.

After these steps, the products are selected and marking is applied to the approved products. This **marking** step may be made before cutting the leads. In other words, Sn or the like...

...plurality of semiconductor devices are fixed is moved in a predetermined direction. At this time, **static** electricity develops between the transfer drum or the relief and the resin molded member, but since the **frame** is kept as a whole at the same potential, the **static** electricity does not affect the interior of the semiconductor pellet but is grounded. Thereafter, the printed marks are baked or dried by an ultraviolet or infrared drier or mere heat-treatment and **adhered** tightly to the **resin** molded member.

Thereafter, each semiconductor device is **separated** by punching, cutting and bending and each lead of each MOS semiconductor device or the like...

...from dielectric breakdown is thus completed.

As described above, baking (mark baking) is made at 150 (degree)C for 3 to 5 hours in the **case** of marking by the ink. If laser marking is employed, on the other hand, baking for...

...to EP-A-0157008.

After baking is complete, the resin molded electronic devices (such as **integrated circuit** devices, semiconductor devices) are put into the moisture-proofing **bag** shown in the foregoing two embodiments, either directly or through a suitable auxiliary member (magazine...

...within a few days and preferably, within a few hours after completion, together with a **desiccant** such as **silica gel**, and are then sealed airtight.

Thereafter, the resin molded devices are packed into a shipment...

...in the external air. Various solder reflow processes are used for mounting the semiconductor devices.

The present invention may also be applied to other **semiconductor components**. Examples of these will now be described.

Fig. 12 shows an element which is called a...

...and generally a "Small Outline Package (SOP)".

Fig 13 shows a surface mount element which is called a "flat **plastic package** (FPP) or a **squad flat package** (QFP)". Furthermore, Fig. 14 shows an element for use particularly in a semiconductor memory or the like, which is called a "small outline J-bend **package** (SOJ)". Fig. 15 shows an element which is called a "**plastic leaded chip carrier** (PLCC)" and is used for high density **surface mount devices**. Fig. 16 shows a device which belongs to the **butt lead** type and is called a "mini-squad package (MSP)".

Unlike the element mentioned above, the...

...substrate. Therefore, it is an insert type and is generally called a "**dual in-line package** (DIP)".

In Figs. 12 to 17 described above, a **semiconductor chip** 42 is fixed using an Ag paste 43 to a holder such as tabs or islands made of a thin metal sheet. The bonding pads...

...46 are formed by punching out from a 42-alloy or a copper alloy film.

They are transfer-molded by an epoxy resin 41.

A large number of resin molded devices are...

...tray 55 forming a carrier member. The tray is made of vinyl chloride to which **antistatic** treatment is applied, and the resin molded devices 53 are put into square recesses 56...

...aligned in the form of array. In this case, it is possible to put directly **silica gel** or the like into each recess 56 and to seal the upper surface air-tight...recesses 56 formed in a line on the carrier tape 57 and their upper surface is heat-sealed by a cover tape 60. The tape is wound on the reel under...

...the same way as above. In this case, too, the external moisture-proofing sheet can be eliminated by changing the cover tape 60 to the moisture-proofing sheet shown in Fig. 8 or 11 and putting **silica gel** or the like into each recess 56.

Incidentally, refer to JP-A-62-16378 for...

...inside the tube-like magazine 2 and secured fixedly by a stopper pin 64 and a stopper filler 4. A predetermined number of magazines are stored in the inner box 1 having low hygroscopicity, made...

...member directly into the moisture-proofing bag without using the an inner box.

Though the **desiccant** is put into a paper bag or the like and then

placed inside the interior...

...position such as the recess of the magazine or the carrier tape. For instance, the **desiccant** may be coated and diffused on the inner surface of the moisture-proofing sheet.

As...

...refer to the afore-mentioned reference Japanese Patent Laid-Open No. 178877/1986.

The relationship **between** the sectional structure of the memory IC device and the **package** in the present invention will be **explained**. Here, the SOP type package will be described by way of example.

In Fig. 23...

...CLAIMS B1

1. A package comprising an air-sealed **moisture - proof** container (8,17) enclosing at least one semiconductor element (3,12); characterised in that:
the...

...31) containing at least one metal sheet (35).

3. A package comprising an air-sealed **moisture - proof** container (17) enclosing at least one semiconductor element (3,12); characterised in that:
the container...

...3, wherein the metal sheet (35) of the film (31) is sandwiched between layers of **plastics** materials (36,39).

5. A **package** according to any one of the preceding claims, also having a **humidity indicator** (15) within the container (17) and visible through at least a part of the container (17).

6. A package comprising an air-sealed **moisture - proof** container (17) enclosing at least one semiconductor element (12); characterised in that:
the container (17) contains a **humidity indicator** (15) which is visible through at least a part of the container (17).

7. A...

...least one semiconductor element (3,12) and a drying agent (5) within an air-sealed **moisture - proof** container (8,17).

11. A method according to claim 10, wherein the container (8,17)...

...CLAIMS d'elements a semiconducteurs est prevue a l'interieur du sac (8, 17) ; et

un **dessicateur** (5) est dispose a l'interieur du sac (8, 17).

11. Emballage hermetique a l...

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00563798

Integrated circuit shipping medium.

Verladen Einrichtung für integrierte Schaltung.

Dispositif de conditionnement pour circuit integre.

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DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS: H05K-013/00;

CITED PATENTS (EP A): EP 350003 A; EP 321083 A

ABSTRACT EP 563629 A1

Plastic encapsulated ICs (20) are susceptible to moisture due to the permeability of molding compounds. ICs (20) may be baked until dry before being shipped to the customer to reduce the risk of cracking. To retain this dry condition, ICs (20) are packaged and shipped in dry- **packs** . A **desiccating** layer (12) is provided for tape and reel IC shipping medium (10) to protect ICs from moisture. The **desiccating** layer (12) extends the length of the carrier tape (16) providing an equal level of protection for each of the IC (20) contained inside pockets (18) of **carrier** tape (16). Each IC (20) remains protected by **desiccant** (12) until the IC (20) is removed from pocket (18) immediately before being mounted onto a printed circuit board. Individualized **desiccant** protection can also be applied to other IC shipping media such as rails and **trays** . (see image in original document)

ABSTRACT WORD COUNT: 148

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FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	592
SPEC A	(English)	EPABF1	2957
Total word count - document A			3549
Total word count - document B			0
Total word count - documents A + B			3549

...ABSTRACT of cracking. To retain this dry condition, ICs (20) are packaged and shipped in dry- **packs** . A **desiccating** layer (12) is provided for tape and reel IC shipping medium (10) to protect ICs from moisture. The **desiccating** layer (12) extends the length of the carrier tape (16) providing an equal level of protection for each of the IC (20) contained inside pockets (18) of **carrier** tape (16). Each IC (20)

remains protected by **desiccant** (12) until the IC (20) is removed from pocket (18) immediately before being mounted onto a printed circuit board. Individualized **desiccant** protection can also be applied to other IC shipping media such as rails and **trays** . (see image in original document)

...SPECIFICATION relates to the packaging for shipping of integrated circuits in general, and more specifically to **desiccants** that are included with each batch shipment of ICs.

Background of the Invention

Plastic encapsulated...

...their operation.

Current dry-packing practices involve baking parts until dry, placing them into a **dry - pack** bag with **desiccant** packets and a **humidity indicator** card, vacuum sealing the bag immediately thereafter, and shipping the devices to the customer in these dry-packs. The amount of **desiccant** in each **dry - pack** bag can be determined by using IPC Standard SM786. A problem with the current method of dry-packing is that **desiccant** packets may not keep the **dry - pack** bag uniformly dry, because a **desiccant** packet is most effective for a small region surrounding it. Therefore, the location of the semiconductor devices relative to the **desiccant** also affects the amount of moisture that will be absorbed by the **desiccant** away from the devices. Those devices closer to the **desiccant** benefit more from the **desiccant** than those devices that are farther away from the **desiccant** . Furthermore, the **desiccant** packets are only placed in the **dry - pack bag** , but not directly in the IC shipping medium, such as tape and reel or rails or **trays** . The shipping medium itself can serve as a deterrent to the efficacy of the **desiccant** by being a physical barrier between the semiconductor devices and the **desiccant** packets.

Another limitation of current dry-packing is that once the **dry - pack** bag has been opened, all moisture protection is lost. The ICs along with their shipping...

...to the printed circuit (PC) board and still be guaranteed a low enough level of **moisture absorption** in the devices to avoid their cracking during the solder reflow operation. A more controlled...

...circuit (IC) packaging medium having a shipping means for carrying ICs, a cover, and a **desiccant** . The shipping means for carrying ICs has at least one compartment wherein the ICs are contained. The cover contains the ICs within the shipping means. The **desiccant** is placed in close proximity to the ICs contained inside the compartment of the shipping means and is located between the shipping means and the cover wherein the **desiccant** is individualized for each of the ICs. These and other features, and advantages, will be...

...view of a portion of a tape and reel IC shipping medium with a continuous **desiccant** layer under a cover tape, illustrating an embodiment of the present invention.

FIG. 2 is...

...a cross-section of the portion of tape and reel IC shipping medium with the **desiccant** layer between the cover tape and the carrier tape.

FIG. 3 is a top view of a portion of a tape and reel shipping IC medium with discrete **desiccants** under a cover tape, illustrating a second embodiment of the present invention.

FIG. 4 is...

...cross-section of the portion of tape and reel IC shipping medium with

the discrete **desiccants** between the cover tape and the carrier tape.

FIG. 5 is cross-sectional view of a portion of tape and reel IC shipping medium with individualized **desiccants** inside each compartment of the **carrier** tape, illustrating a third embodiment of the invention.

FIG. 6 is a top view of a rail for carrying ICs with a continuous layer of **desiccant** inside the ...cross-sectional view of FIG. 6 showing a cross-section of the rail with the **desiccant** layer between the IC and the rail window.

FIG. 8 is cross-sectional view of...

...continuous strip of humidity sensing indicators between the cover tape and carrier tape and individualized **desiccants** inside each pocket of the carrier tape, illustrating a fifth embodiment of the invention.

FIG...

...humidity sensing indicators between the IC and the rail window and a continuous layer of **desiccant** in the bottom of the rail, illustrating a sixth embodiment of the invention.

Detailed Description...

...stated desired feature of uniformly protecting semiconductor devices from moisture ingress. The invention enables individualized **desiccants** for each semiconductor device to be incorporated into an IC packaging medium. Moreover, the invention provides a method for manufacturing an IC packaging medium with individualized **desiccants**. In accordance with the invention, shown in FIG. 1 is a portion 10 of a tape and reel IC shipping medium with a continuous **desiccant** layer 12 under a cover tape 14, illustrating an embodiment of the present invention. The **desiccant** layer 12 can be formed from a polyvinyl alcohol, a polyvinyl ethylene acetate copolymer, a methyl cellulose, a water soluble polymer, a **silica gel**, or any other material in a class of organic, inorganic or a composite thereof, that can act as a humectant. Hence, **desiccant** layer 12 can comprise several materials, either as multiple layers or as a composite of one or several materials dispersed in another. It is important to select a **desiccant** that does not act as a contaminant to the ICs, such as having inadequate ESD (**electrostatic** discharge) protection or changing physical and chemical characteristics with the absorption of water. Furthermore, it is also necessary to choose a **desiccating** material that will absorb moisture at a faster rate than the plastic encapsulated semiconductor devices. The thickness of the **desiccant** layer 12 can be substantially in a range from 0.05 millimeter to 0.64 millimeter depending on the type of material chosen as a **desiccant**.

A cross-sectional view of FIG. 1 showing the portion 10 of tape and reel IC shipping medium with the **desiccant** layer 12 between the cover tape 14 and the carrier tape 16 is illustrated in...

...of individualized compartments 18 for carrying ICs. Semiconductor devices 20, illustrated in FIG. 2 as **plastic** pad array **carriers**, are shown inside the compartments 18. Because **desiccant** layer 12 extends the length of the cover tape 14 and carrier tape 16, each device 20 has the same amount of protection from moisture from the **desiccant** 12.

A second embodiment of the invention is illustrated in FIG. 3 showing a portion 22 of a tape and reel IC shipping medium with discrete **desiccants** 24 under a cover tape 14. The class of materials for discrete **desiccants** 24 is the same as that of **desiccant** layer 12, shown in FIG. 1. The thickness of the **desiccant** can also be in the same range of 0.05 millimeter to 0.64 millimeter...

- ...embodiment showing the portion 22 of tape and real IC shipping medium wherein the discrete **desiccants** 24 are located between the cover tape 14 and carrier tape 16. The discrete **desiccants** 24 are positioned directly over the plurality of compartments 18 with a one to one...
- ...section of a portion 26 of a tape and real IC shipping medium with discrete **desiccants** 28 located inside the plurality of compartments 18 of carrier tape 16, illustrating a third embodiment of the present invention. This third configuration provides each compartment 18 with discrete **desiccants** 28 thereby allowing individual moisture protection for the devices 20. The class of materials for discrete **desiccants** 28 is the same as that of **desiccant** layer 12, shown in FIG. 1. The thickness of the **desiccant** can also be in the same range of 0.05 millimeter to 0.64 millimeter...
- ...material used.
In addition to tape and real IC shipping medium, the concept of discrete **desiccants** can be applied to a shipping tray also. The discrete **desiccants** can be located either inside each tray pocket or on the underside of the tray...
- ...option provides each semiconductor device carried in the pockets of a tray with an individualized **desiccant**. Another option to providing **desiccant** protection for each IC in a **tray** is to use a sheet of **desiccant** which can be placed between the stacking trays.
Yet another alternative embodiment to the invention is illustrated in FIG. 6. Shown is an IC shipping medium 30 comprising a shipping rail or tube 32, a **desiccant** layer 34, and a plurality of stoppers 36. The **desiccant** layer 34 is continuous and extends the length of shipping rail 32, thereby providing continuous...
- ...rail 32. A cross-sectional view of this fourth embodiment is shown in FIG. 7. **Desiccant** layer 34 is located inside the top of shipping rail 32. A representative J-leaded can also be shipped in rails. Again, the class of materials for **desiccant** layer 34 is the same as that of **desiccant** layer 12, shown in FIG. 1. The thickness of the **desiccant** can also be in the same range of 0.05 millimeter to 0.64 millimeter depending on the material used.
Another embodiment of the present invention combines both individualized **desiccants** with compartmentalized humidity sensing indicators. As illustrated in FIG. 8, a portion 40 of a tape and real IC shipping medium comprises a cover tape 14, a **carrier** tape 16 with a plurality of compartments 18 containing semiconductor devices 20, discrete **desiccants** 28, and a strip 42 with a repeating series of humidity sensing indicators 44, 46...
- ...tape 16 and cover tape 14. This fifth configuration provides each compartment 18 with discrete **desiccants** 28 thereby allowing individual moisture protection for the devices 20 in addition to localized monitoring of moisture levels for the devices 20. The class of materials for discrete **desiccants** 28 is the same as that of **desiccant** layer 12, shown in FIG. 1. The thickness of the **desiccant** can also be in the same range of 0.05 millimeter to 0.64 millimeter...
- ...humidity of 20% or greater. Manufacturers normally guarantee a maximum relative humidity of 30% for **dry - pack** conditions, which is typically considered a safe moisture level for board mounting of most plastic...
- ...devices 20.
Yet another embodiment of the present invention combining both a continuous layer of **desiccant** with localized humidity sensing

indicators is possible. Illustrated in FIG. 9 is a cross-sectional view of IC shipping medium 50. Shown is a shipping rail or tube 32, a desiccant layer 34, a strip 42 of humidity sensing indicators, and a semiconductor device 38. The desiccant layer 34 is continuous and extends the length of shipping rail 32, thereby providing continuous...

...FIG. 8.

Also in accordance with the present invention is a method for incorporating individualized desiccants into an IC packaging medium to uniformly protect semiconductor devices from moisture ingress. Carrier tapes of tape and reel IC packaging medium have individual pockets or compartments to carry semiconductor devices. Preforms of a hygroscopic material, such as partially hydrolyzed polyvinyl alcohol, can be made according to the size of the carrier tape compartments. Since this material is a thermoplastic, it can be spot tacked into place ...

...tape for shipping. Such an embodiment is shown in FIG. 5. Other methods of providing desiccant protection in a tape and reel IC shipping medium are also possible. The desiccant preforms can be affixed to the cover tape instead of the carrier tape. The semiconductor devices still receives equal protection from having a desiccant in close proximity to each device. It is possible that the desiccant itself can be formed as a film of hygroscopic material as opposed to the preform concept. The film desiccant can be affixed to the cover tape with an adhesive material; or in the case of a partially hydrolyzed polyvinyl alcohol desiccant, that material can act as its own adhesive. Furthermore, the methods of incorporating desiccants into an IC shipping medium can be applied to shipping media other than tape and...

...In particular, it has been revealed that the invention is easily adaptable to fit varying IC shipping media, such as tape and reel, rails and trays. The desiccant can easily be manufactured to fit different sizes of carrier tape, rails and trays, either...it is apparent that there has been provided, in accordance with the invention, an individualized desiccant that fully meets the need and advantages set forth previously. Although the invention has been...

...devices illustrated in the figures. Furthermore, a variation to the present invention can be a carrier tape coated with a desiccating material, such as polyvinyl alcohol. Then during the elevated temperature sealing of the carrier tape with a cover tape, the thermoplastic can act as the adhesive for the cover tape. Along the same line, trays can also be coated with a desiccant. Those skilled in the art will recognize that modifications and variations can be made without ...

- ...CLAIMS retaining means (14) for containing the ICs (20) within the shipping means (16); and
- a desiccant (12) placed in close proximity to the ICs (20) contained inside the compartment (18) of the shipping means (16) wherein the desiccant (12) is individualized for each of the ICs (20).
2. The IC shipping medium (10) according to claim 1 wherein the desiccant (12) comprises a continuous layer of desiccant located between the shipping means (16) and the retaining means (14).
 3. An IC shipping medium (10) comprising:
 - a carrier tape (16) having a plurality of compartments (18) in series for carrying ICs (20), the...

- ...the cover tape (14) extending for at least the first length; and
a layer of **desiccant** (12) wherein the layer extends for at least the first length and is placed in close proximity to the ICs (20) contained inside the **carrier** tape (16).
4. The IC shipping medium (10) according to claim 3 wherein the layer of **desiccant** (12) further comprises a continuous layer of **desiccant** located between the carrier tape (16) and the cover tape (14), the continuous layer being...
- ...millimeter.
5. The IC shipping medium (26) according to claim 3 wherein the layer of **desiccant** further comprises a plurality of individualized **desiccants** (28) located in the plurality of compartments (18) of the **carrier** tape (16).
6. The IC shipping medium (10) according to claim 3 wherein the layer of **desiccant** (12) is comprised of a material selected from the group consisting of: a polyvinyl alcohol, a polyvinyl ethylene acetate copolymer, a methyl cellulose, a water soluble polymer, a **silica gel**, and a polyimide.
7. An IC shipping medium (40) comprising:
a shipping means (16) for...
- ...a retaining means (14) for containing the ICs (20) within the shipping means (16);
a **desiccant** (28) placed in close proximity to the ICs (20) contained inside the compartment (18) of the shipping means (16) wherein the **desiccant** (28) is individualized for each of the ICs (20); and
a plurality of humidity sensing...
- ...indicators (44, 46 & 48) comprising a continuous strip (42) with a repeating series of **humidity indicators** (44, 46 & 48), wherein each of the plurality of humidity sensing indicators (44, 46 ...
- ...from a group consisting of: a tape and reel, a shipping rail, and a shipping **tray**.
9. The IC shipping medium according to claim 1 or claim 7 wherein the **desiccant** is comprised of a material selected from the group consisting of: a polyvinyl alcohol, a polyvinyl ethylene acetate copolymer, a methyl cellulose, a water soluble polymer, a **silica gel**, and a polyimide.
10. The IC shipping medium according to claim 1 or claim 7 wherein the **desiccant** comprises a sheet of **desiccant** sized to cover the ICs contained within the shipping means, the sheet of **desiccant** being located between the shipping means and the retaining means. ...

(19)



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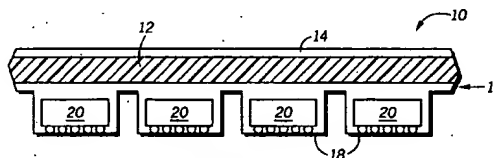
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Basingstoke Hampshire RG22 4PD (GB)(54) **Integrated circuit shipping medium.**

(57) Plastic encapsulated ICs (20) are susceptible to moisture due to the permeability of molding compounds. ICs (20) may be baked until dry before being shipped to the customer to reduce the risk of cracking. To retain this dry condition, ICs (20) are packaged and shipped in dry-packs. A desiccating layer (12) is provided for tape and reel IC shipping medium (10) to protect ICs from moisture. The desiccating layer (12) extends the length of the carrier tape (16) providing an equal level of protection for each of the IC (20) contained inside pockets (18) of carrier tape (16). Each IC (20) remains protected by desiccant (12) until the IC (20) is removed from pocket (18) immediately before being mounted onto a printed circuit board. Individualized desiccant protection can also be applied to other IC shipping media such as rails and trays.

**FIG.2****EP 0 563 629 A1**

28/5,K/8 (Item 8 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
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00422510

Inhibitor parcel and method for preserving electronic devices or electronic parts.

Inhibitorpackchen und Verfahren zum Schutzen elektronischer Vorrichtungen oder elektronischer Bauelemente.

Emballage inhibiteur et methode pour preserver des dispositifs electroniques ou des composants electroniques.

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ABSTRACT EP 424855 A1

Disclosed are an inhibitor parcel comprising (a) a composition comprising an unsaturated fatty acid compound as its main ingredient and (b) a permeable diffusing-parcelling material prepared by laminating and bonding an oxygen-permeable resin layer onto one side of a base sheet made of a fibrous material and an adhesive or onto one adhesive-coating side of a base sheet made of a fibrous material, then laminating and bonding thereonto an oxygen-permeable resin layer and laminating and bonding a porous film of low softening point resin or a low softening point unwoven fabric onto the other side of the base sheet, said permeable diffusing-parcelling material (b) having an oxygen permeability of 10(sup 4) to 10(sup 6) ml/(sup 2) Atm Day and a (water vapor permeability/oxygen permeability) ratio of 0.02 (H(sub 2)O mg Atm/O(sub 2) ml) or above at 25(degree)C at a relative humidity of 50% and said composition (a) being parcelled by said permeable diffusing-parcelling material (b) and an inhibitor parcel for use in electronic devices and electronic parts which comprises said inhibitor parcel and a method for preserving electronic devices and electronic parts using said inhibitor parcel.

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to IC...can be mentioned a method which comprises applying an adhesive onto a lead frame, attaching IC chip thereto, introducing them into a gas barrier type **container** **together** with an inhibitor parcel of this invention, keeping the **whole** under the above- mentioned reaction conditions to cure the adhesive, bonding the whole and storing...

...fiber, and the like.

If desired, a sizing agent, a binder, a coagulant or an **antistatic** agent may be added to the supporting sheet.

The supporting **sheet** usually ...Examples 21-30 were replaced with a parcel prepared by packaging 2.5 g of **silica gel** into the permeable parcelling material of **Comparative Example 1**. They were preserved in the same manner as in Examples 21-30, and the...

...under usual conditions of use.

Comparative Examples 16 and 17 disclose a case of using **silica gel** and a case of replacement with **nitrogen** , **respectively** . Though an inhibitory effect was observed in these cases so far as the period of



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